

Public Procurement and MEAT Criteria: An Empirical Analysis Across Sectors, Regions, and Tender Types in the Netherlands

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August 19, 2025

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Pages: 60

Abstract

In recent years, public procurement has evolved from a cost-driven process into a strategic policy instrument for promoting sustainability, innovation, and social value. This study investigates how the Most Economically Advantageous Tender (MEAT) criteria are implemented in Dutch public procurement, and which factors influence their adoption and weighting. Drawing on a dataset of 4,957 tenders published in the Netherlands between 2021 and 2023, the research applies a combination of non-parametric tests and regression analyses to identify sectoral, regional, and organisational patterns in MEAT usage.

The findings show that MEAT criteria are widely used, with quality emerging as the dominant non-price factor. However, the inclusion of sustainability and innovation remains limited. Significant variation is found across sectors, provinces, and types of contracting authorities. Urban tenders and national agencies are more likely to prioritise non-price elements, while high contract value and complexity are positively associated with the use of comprehensive evaluation frameworks. Contrary to expectations, SMEs were more likely to win tenders that were both complex and heavily weighted on non-price dimensions, suggesting that complexity does not necessarily deter SME participation.

The study contributes to the academic literature by empirically demonstrating how contextual and institutional factors shape procurement behaviour, in line with theories of public value and institutional governance. In practical terms, it provides evidence-based recommendations for contracting authorities and policymakers, such as the development of standardised templates, targeted training, and simplified procedures to support SME inclusion. These insights aim to enhance the strategic impact of procurement and better align national practices with EU policy goals on sustainability and innovation.

Keywords: Public Procurement, MEAT, Sustainability, Innovation, SME Participation, Strategic Purchasing, Netherlands

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Acknowledgements

Writing this thesis has been both an intellectually rewarding and personally enriching experience. I would like to express my sincere gratitude to the people who supported and guided me throughout this journey.

First and foremost, I want to thank my university supervisors, Dr. Jakub Sieber and Dr. Vincent Delke, for their invaluable support. A special word of thanks goes to Dr. Sieber, who has been involved from the very beginning and has consistently provided insightful feedback, encouragement, and direction. Knowing I could always reach out to him made a significant difference during the process. I also thank Dr. Delke for his valuable input during the final stages, helping to bring this thesis to a higher scientific level.

Throughout the process, I have deepened my understanding of public procurement, particularly the strategic use of MEAT criteria. Although I did not encounter major obstacles, the work required consistent dedication and critical reflection, which contributed greatly to my academic and personal growth.

Statement on the Use of AI

During the writing of this thesis, I made limited use of the AI tools ChatGPT to support my workflow. These tools were used for:

- Structuring initial outlines and brainstorming,
- Rewriting and proofreading specific sections for clarity and consistency,
- Translating content between Dutch and English.

All content has been critically reviewed, edited, and substantiated by myself. The core ideas, analyses, and interpretations are my own, and I have taken care to ensure that the use of AI did not compromise the academic integrity or originality of this work.

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List of Abbreviations

AHP	Analytic Hierarchy Process
CAN	Contract Award Notice
CBS	Statistic Netherlands
CFC	Call for Competition
CSR	Corporate Social Responsibility
DEA	Data Envelopment Analysis
EAD	Environmental Address Density
ESG	Environmental, Social, and Governance
EU	European Union
GAM	Generalized Additive Model
GDP	Gross Domestic Product
GPP	Green Public Procurement
GVIF	Generalized Variance Inflation Factors
MEAT	Most Economically Advantageous Tender
N	Number of observations
OLS	Ordinary Least Squares
S	Services
SME	Small and Medium-sized Enterprise
TED	Tenders Electronic Daily
U	Supplies
VAT	Value Added Tax
W	Works

1. Introduction

Public procurement represents a significant share of economic activity in the European Union (EU), with governments spending around €2 trillion annually, roughly 13% of the Gross Domestic Product (GDP) (European Commission, 2017b; OECD, n.d.). In the Netherlands, procurement is increasingly seen not only as a cost-management tool but also as a lever for achieving broader societal goals such as sustainability, innovation, and Small Medium-sized Enterprise (SME) participation (Rijksinstituut voor Volksgezondheid en Milieu, 2021). In line with EU Directives 2014/23/EU, 2014/24/EU and 2014/25/EU, the Dutch Procurement Act of 2012 stipulates that contracts should be awarded on the basis of the MEAT (European Union, 2014a; Overheid.nl, 2014). This approach evaluates bids by considering both price and a range of qualitative, non-price criteria.

The MEAT principle aims to move procurement decisions away from lowest-price-only strategies towards a more strategic assessment of long-term value creation. Non-price criteria may include quality, environmental performance, innovation potential, delivery time, or social impact (Boes & Dorée, 2011; Džupka et al., 2020; Stake, 2017). By design, MEAT thus constitutes a multi-criteria decision-making problem in which contracting authorities balance quantitative and qualitative considerations. However, the application of MEAT in practice remains inconsistent across the Netherlands. Some authorities apply comprehensive frameworks that give substantial weight to sustainability or innovation, while others continue to rely heavily on price (Bergman & Lundberg, 2011).

These discrepancies give rise to several challenges. First, contracting authorities differ in their administrative capacity and sectoral context, which affects how non-price criteria are defined and weighted (Uyarra et al., 2014; Yu et al., 2020). Second, empirical studies indicate that the integration of sustainability and innovation into procurement remains limited, despite policy ambitions (Kundu et al., 2020; Nemeč et al., 2021). Third, smaller firms are often assumed to be disadvantaged in tenders with complex MEAT requirements, raising questions about inclusiveness (Flynn et al., 2015). Together, these issues point to a gap between policy intentions and actual practice, and they call for systematic empirical investigation.

Against this background, this thesis analyses the implementation of MEAT criteria in Dutch public procurement. Based on a dataset of 4,957 tenders published between 2021 and 2023, it examines how non-price criteria are adopted and weighted, and which contextual factors explain variation across sectors, regions, tender types, and contracting authorities. Particular attention is paid to the role of contract value, complexity, and administrative capacity in shaping evaluation designs, and to the participation of SMEs under different MEAT configurations.

The study is guided by two theoretical perspectives. Institutional Theory (Bromley & Powell, 2012; DiMaggio & Powell, 2000) suggests that organisational behaviour in procurement is shaped by coercive, normative, and mimetic pressures, which can explain why ministries, municipalities, and public-law bodies adopt different evaluation logics.

The Public Value Framework (Brammer & Walker, 2011; Harland et al., 2021; Symes, 1999) frames procurement as a governance instrument aimed at maximising societal benefit, clarifying why broader mandates may prioritise sustainability and innovation while resource-constrained authorities may emphasise efficiency. By connecting empirical findings to these frameworks, the study not only maps current practice but also explains why observed patterns emerge.

The central research question reads: *'How are MEAT criteria implemented in public procurement in the Netherlands, and what factors shape their adoption and weighting across sectors, regions, and tender types?'*

This thesis contributes in three ways. First, it provides a large-scale, up-to-date overview of MEAT implementation in the Netherlands. Second, it demonstrates how empirical patterns align with or challenge theoretical expectations from Institutional Theory and the Public Value Framework, thereby refining their application to procurement research. Third, it offers practical recommendations for policymakers and contracting authorities on how to standardise MEAT application, strengthen professionalisation, and design tenders that promote both efficiency and public value (European Commission, 2017b; Grandia & Meehan, 2017).

The remainder of this thesis is structured as follows. Chapter 2 develops the theoretical framework and hypotheses. Chapter 3 describes the research design, whereas the empirical results on MEAT usage and variation across context are presented in Chapter 4. Chapter 5 discusses the findings and outlines limitations and implications. Chapter 6 concludes with recommendations for policy and practice.

2. Theoretical Framework

Following the introduction's exploration of the importance of value creation in public procurement, this chapter provides a theoretical foundation for the study. It reviewed the academic literature on public value, procurement strategies, and the MEAT method, and outlines how these concepts relate to one another. By synthesizing existing research, this chapter constructs a conceptual framework that informs both the research question and the empirical analysis that follows.

2.1. The Role of MEAT in Public Procurement Procedures

Public procurement has evolved beyond a simple cost-driven process to incorporate a broader range of non-financial criteria such as sustainability, innovation, and social responsibility (Brammer & Walker, 2011). This evolution aligns with the public value framework, where procurement is viewed as a lever to deliver societal impact beyond mere efficiency (Harland et al., 2021). To ensure that these non-financial criteria are implemented when selecting the appropriate bid, the procurement process is examined in detail. According to Bäckstrand et al. (2019), the procurement process consists of six key stages:

1. Posting announcement of tender on TenderNed
2. Publish tender
3. Suppliers subscribe
4. Suppliers make an offer
5. Selection and award
6. Announce award results

The evaluation of bids, which is the primary focus of this study, takes place in the fifth stage: selection and award. In 2012, the Dutch Procurement Act was enacted, stipulating in Article 2.114, Section 1 (Overheid.nl, 2014), that contracting authorities must base awards on the MEAT. However, the application of this approach is not uniform. While the legal framework provides a foundation for MEAT adoption, there is limited empirical evidence on how non-price criteria are applied in practice across different sectors, regions, and tender types in the Netherlands. Institutional theory offers a valuable lens here: differences in procurement practice may stem from institutional isomorphism, where public organizations mimic practices shaped by norms, regulations, and sectoral pressures (DiMaggio & Powell, 2000).

For instance, it remains unclear which non-price criteria are most commonly prioritized and how their weighting varies depending on the context of the tender (Parikka-Alhola & Nissinen, 2012). A practical example from the study by Rijt et al. (2010) shows that in 2007, Rijkswaterstaat, the executive agency of the Dutch Ministry of Infrastructure and Water Management, awarded more than half of the total procurement volume based on MEAT criteria, while only one-third of the total number of tenders actually employed MEAT.

This illustrates how governance structures and organizational routines can decouple formal policy from actual practice; a core theme in institutional theory (Benington, 2005; Bromley & Powell, 2012). This lack of systematic analysis creates a research gap, as understanding these variations is critical to optimizing procurement outcomes and aligning practices with

broader EU objectives. From a sustainability governance perspective, understanding how procurement operates as a regulatory tool (Kuhlmann & Rip, 2018) is essential to assess whether public organizations actively steer toward societal goals. Whereas from this, the first hypothesis is derived:

Hypothesis 1 (H1): The adoption and weighting of MEAT criteria in Dutch public procurement vary significantly across sectors, regions, and tender types.

This hypothesis directly addresses the first sub-question by investigating which non-price criteria are most applied in Dutch public procurement tenders and how their weighting differs across sectors, regions, and tender types. It explores the variations in the adoption and prioritisation of non-price criteria, offering insights into how these factors influence procurement decisions.

2.2 Understanding Non-Price Criteria in Public Procurement

Despite the growing emphasis on non-price criteria in public procurement, there remains a lack of consensus on how these criteria should be selected, weighted, and applied in practice. These MEAT-criteria play a crucial role in the evaluation of tenders within public procurement (Stake, 2017), whereas these criteria encompass a variety of qualitative and quantitative factors that go beyond mere cost considerations, ensuring a comprehensive evaluation of suppliers' offerings (Bergman & Lundberg, 2011). Key non-price criteria include technical capabilities, environmental sustainability, innovation, and social responsibility (Marcarelli & Nappi, 2019; Parikka-Alhola & Nissinen, 2012).

The adoption of MEAT criteria in the Netherlands illustrates significant differences across sectors and regions (Boes & Dorée, 2011). For example, public procurement in infrastructure projects often prioritizes sustainability and innovation, given the long-term impact and public visibility of these initiatives (Uyarra et al., 2014). A prominent method is the CO₂ Performance Ladder, which rewards contractors for reducing their carbon footprint, thus aligning tender objectives with sustainability goals (Dorée et al., 2011). In contrast, the healthcare sector typically emphasizes quality and service continuity due to the critical and immediate needs of end-users (Stake, 2017). The construction sector, on the other hand, heavily focuses on time for project completion and construction costs because of the risk of losing funding when deadlines aren't met (Lambropoulos, 2007). These patterns illustrate how procurement decisions are embedded within broader institutional environments and shaped by strategic goals; an idea central to the public value framework (Grandia & Meehan, 2017).

So, the type of contracting service, such as the defence, education, health or production sector, can have a significant impact on how non-price criteria are prioritized. Such sectoral variation is not only a practical matter but reflects deeper institutional logics and governance structures within these domains. Considering these differences, the following hypothesis is suggested:

Hypothesis 2 (H2): The weighting of non-price criteria in MEAT evaluations is influenced by the type of contracting service.

This hypothesis investigates how the type of contract affects the weighting of criteria, directly linking to the second sub-question of how MEAT-criteria are weighted across different sectors.

2.3 Trends in the Adoption of MEAT Criteria Across Dutch Public Procurement

While environmental indicators such as CO₂ reduction and energy efficiency are increasingly incorporated into tender evaluations, their practical implementation often depends on the subjective assessments and preferences of individual contracting authorities (Bergman & Lundberg, 2011). Such discretion leads to significant procedural variation, which cannot be fully explained by economic logic alone. Instead, this variation reflects institutional constraints, path dependencies, and organizational routines, pointing to the relevance of institutional theory (DiMaggio & Powell, 2000) in understanding how procurement practices differ across contexts.

In parallel, the literature on sustainability governance conceptualizes public procurement not merely as a transactional or efficiency-driven process, but as a policy instrument that can actively shape environmental and social outcomes (Lember et al., 2014). From this perspective, procurement acts as a form of regulatory innovation (Kuhlmann & Rip, 2018), embedding public value objectives—such as sustainability and social equity—into operational decision-making. This shift reflects a growing expectation that procurement contribute to broader societal goals, aligning with the public value framework (Brammer & Walker, 2011; Symes, 1999), which emphasizes the role of government in creating public benefit beyond economic efficiency alone.

However, even within this normative shift, inconsistencies persist. For example, innovation-driven criteria, which assess suppliers' capacity to develop new solutions or apply novel technologies, are applied unevenly across tenders. Some contracting authorities assign high priority to innovation, while others emphasize traditional factors such as price or quality (Kundu et al., 2020). These inconsistencies underscore a broader research gap: the absence of a standardized, theoretically grounded framework for determining how non-price criteria—such as sustainability and innovation—are operationalized within the MEAT evaluation process.

A particularly relevant dimension of this variation is geographical. Empirical evidence suggests that urban regions demonstrate a more advanced and systematic adoption of MEAT criteria, particularly in relation to sustainability and innovation (CBS, 2010). This can be attributed to multiple reinforcing factors: higher administrative capacity, greater financial resources, and improved access to policy expertise and professional networks. Urban contracting authorities are also more likely to align their procurement strategies with broader EU policy goals on green growth and innovation (European Commission, 2017a). In contrast, rural authorities often face structural limitations—including smaller budgets, fewer staff, and less specialized knowledge—which lead them to emphasize cost-efficiency over broader public value objectives (Testa et al., 2016).

These regional disparities point to the importance of local institutional and organizational capacity in shaping procurement outcomes. While national laws and EU directives provide

a general framework for MEAT implementation, the actual prioritization of non-price criteria appears to be mediated by the contextual realities of individual contracting authorities. Yet, despite these observed differences, there is still a lack of systematic, comparative research into how regional contexts—urban versus rural—affect the adoption of MEAT criteria in the Netherlands. To address this gap, the following hypothesis is proposed:

Hypothesis 3 (H3): Urban regions are more likely to adopt and prioritize sustainability and innovation criteria in MEAT evaluations compared to rural regions.

This hypothesis addresses the second sub-question by exploring how regional differences influence the adoption of non-price criteria within Dutch public procurement. It offers a theoretical and empirical lens to investigate whether regional capacity disparities correlate with variation in sustainability and innovation weighting. In doing so, it contributes to a deeper understanding of how institutional and governance structures shape procurement behaviour and provides practical insights for policymakers aiming to harmonize procurement practices across different regional contexts.

2.4 Influencing Factors in the Selection and Weighting of MEAT Criteria

The selection and weighting of MEAT criteria are shaped by a combination of contextual, organizational, and policy-driven factors, which interact to determine the extent to which non-price criteria are prioritized in public procurement (Bergman & Lundberg, 2011; Stake, 2017). These factors include tender value, contract complexity, policy frameworks, administrative capacity, and market dynamics. Whereby study shows that these interrelated factors reflect institutional embeddedness, where procurement decisions are not purely rational-economic but mediated by routines, resources, and compliance cultures (DiMaggio & Powell, 2000).

Tender value plays a crucial role in the adoption of MEAT criteria. Higher-value tenders often justify the use of comprehensive evaluation frameworks, as their long-term societal and economic impact necessitates a more detailed assessment of qualitative attributes such as sustainability and innovation. In contrast, lower-value tenders are more likely to prioritize price due to budget constraints, leading to a more cost-driven procurement strategy (Stake, 2017).

Contract complexity is another determinant of MEAT selection. More complex contracts—such as those involving large-scale infrastructure projects or innovative technological solutions—often require advanced analytical methods to evaluate multiple competing qualitative factors. Studies have shown that methodologies such as Data Envelopment Analysis (DEA) and Analytic Hierarchy Process (AHP) are frequently employed in complex tenders to facilitate the weighting of sustainability, quality, and innovation criteria (Marcarelli & Nappi, 2019). Simpler contracts, on the other hand, may rely on a more straightforward scoring system, where price remains the dominant factor.

Beyond economic and technical considerations, policy frameworks exert significant influence on MEAT adoption. In the Netherlands, for example, the Dutch Public Procurement Act and EU directives provide a regulatory foundation for MEAT implementation,

encouraging contracting authorities to integrate sustainability and social responsibility into their procurement strategies (European Commission, 2017b). Additionally, the Netherlands' GPP policy promotes the incorporation of specific environmental criteria, such as energy efficiency and CO₂ reduction, within tender evaluations. However, the extent to which these policies translate into actual procurement decisions is often contingent on the commitment, expertise, and resources of individual contracting authorities (Uyarra et al., 2014).

Administrative capacity further shapes MEAT adoption, as procurement officers with limited expertise or technical resources may opt for simplified evaluation frameworks. This is particularly relevant for smaller contracting authorities, where constraints in personnel or budget may lead to a narrower application of MEAT criteria, focusing on cost-effectiveness rather than long-term value creation (Yu et al., 2020). In contrast, larger, well-resourced authorities are more likely to leverage MEAT criteria effectively, ensuring that tenders align with strategic policy objectives.

Despite the identification of these individual factors, there is limited research on how they interact to shape procurement outcomes. For instance, while high-value tenders are expected to prioritize sustainability, the extent to which this is moderated by administrative capacity or sector-specific constraints remains unclear. Similarly, contract complexity might encourage MEAT adoption, but this effect could be weakened by resource limitations within contracting authorities. This gap in the literature underscores the need for an integrated perspective that considers the dynamic interplay of economic, administrative, and policy-related drivers.

So, there is expected that higher-value and more complex tenders require a more sophisticated evaluation process, making it more feasible and justifiable to include extensive non-price criteria. However, administrative constraints may moderate this relationship, influencing whether MEAT criteria are fully implemented in practice. This brings the following hypothesis:

Hypothesis 4 (H4): The selection and weighting of MEAT criteria are significantly influenced by the interaction of tender value, contract complexity, and administrative capacity, with high-value and complex tenders more likely to incorporate comprehensive non-price criteria.

Furthermore, the resource disparities between large firms and SMEs in public procurement led to the fifth hypothesis. Studies indicate that tenders with rigorous MEAT requirements, particularly those emphasizing innovation and sustainability, may create barriers to SME participation (Nemec et al., 2021). This is because SMEs often lack the technical expertise, financial resources, and administrative capacity to meet complex non-price requirements, reducing their likelihood of securing contracts (Flynn et al., 2015). This led us to formulate the following hypothesis:

Hypothesis 5 (H5): SME participation in public procurement tenders is negatively associated with the complexity and weighting of non-price criteria.

These hypotheses are directly linked to the third sub-question, which investigates the factors that influence the selection and weighting of MEAT criteria. Hypothesis four explores how tender value, contract complexity, and administrative capacity interact to shape the prioritisation of non-price criteria, while the fifth Hypothesis examines how the complexity of these criteria can negatively affect SME participation in tenders. Together, they provide a comprehensive view of the factors influencing MEAT decisions, from the perspective of both larger contracting authorities and smaller businesses, offering insights into the challenges and dynamics of public procurement.

2.5. Conceptual Framework of MEAT Criteria in Dutch Public Procurement

Figure 1 below summarizes the hypotheses, using a conceptual model. A conceptual model is a structured representation of interconnected concepts that helps clarify relationships between variables within a study (Jabareen, 2009). It visually translates theoretical assumptions into a testable framework.

This conceptual model illustrates how sectoral, regional, and organisational factors influence the adoption and weighting of MEAT criteria in Dutch public procurement. It also shows how this, in turn, impacts SME participation, with the interaction of tender value, contract complexity, and administrative capacity acting as a key moderating factor.

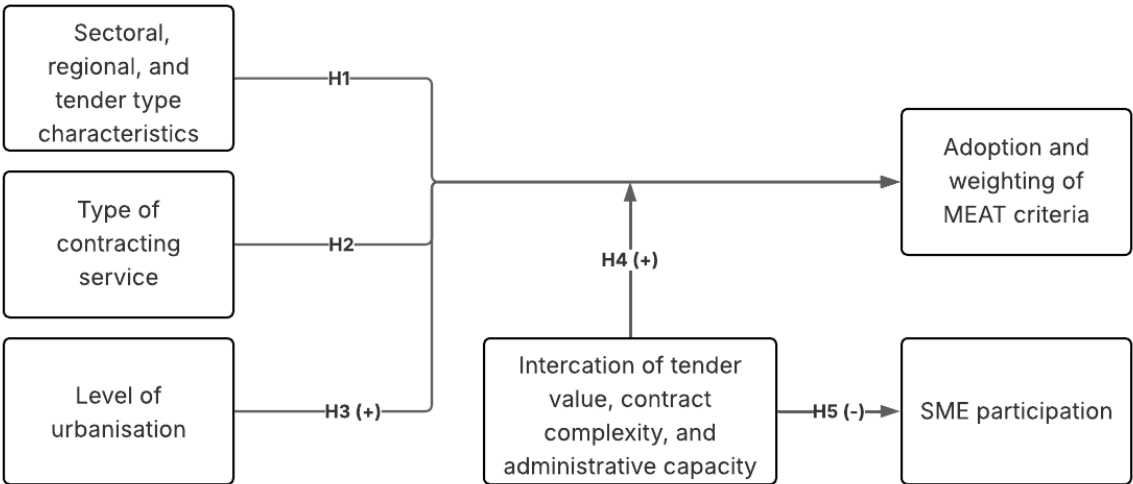


Figure 1
Conceptual Model of Determinants and Effects of MEAT Criteria in Dutch Public Procurement

3. Method

Building on the conceptual framework established in the previous chapter, this chapter outlines the methodological approach used to investigate how public organizations apply MEAT criteria to create public value. It discusses the chosen research design, case selection, data collection methods, and analytical techniques.

3.1. Research Design

This study employed a quantitative research design to explore the application of MEAT criteria in public procurement in the Netherlands. A quantitative approach is suitable for this research as it allows for the analysis of patterns, trends, and correlations in the use and weighting of non-price criteria across various sectors, regions, and tender types.

The goal is to provide an empirical understanding of how MEAT criteria are implemented, drawing on a large dataset of procurement tenders. While the design is theoretically underpinned by literature that emphasises the influence of contextual, organisational, and policy-driven factors (e.g. tender value, contract complexity, and administrative capacity) on procurement decision-making (Bergman & Walker, 2011; Stake, 2017).

A descriptive and explanatory analysis was conducted to identify the most applied non-price criteria, their respective weightings, and the factors influencing their selection and prioritization. This approach enables a comprehensive examination of the variations in MEAT criteria adoption, offering valuable insights into the efficiency and effectiveness of public procurement processes.

To properly test the proposed hypotheses, the following steps as mentioned in Figure 2 are taken to prepare the dataset. The flowchart outlines the full process from importing and filtering the initial datasets to merging sources, creating new variables, and cleaning the data. Each step was essential to ensure the resulting dataset was accurate, consistent, and suitable for statistical analysis.



Figure 2
Data Cleaning and Preprocessing Workflow for Final Dataset Construction

3.2. Data Collection, Source and Tools

The first secondary data were obtained through TED, the online version of the Supplement to the Official Journal of the European Union, which publishes all European public procurement tenders that exceed the established threshold values (European Union, 2024). TED provides comprehensive data on procurement tenders across EU member states, including detailed information on the criteria used for awarding contracts.

The most recent dataset "*TED – Contract award notices 2018–2023*", published on January 25, 2024, contains contract notices from 2018 to 2023, which offers a sufficiently recent and relevant overview of public procurement practices.

The second source of secondary data were obtained from CBS (2024). This source provides key figures from various years related to Dutch postal codes. For this study, the dataset "*Numerical Postal Code (PC4)*" was used, as the 2023 data represents the most recent and up-to-date information available. To link municipalities and provinces to these values, the datasets "*Municipality Alphabetically by Province*" and "*Neighbourhood, District and Municipality 2024 by Postal Code and House Number*" were used.

For this study, the data from these two sources are combined. TED provides detailed information on European public procurement, including tender value, contracting authorities, and award criteria. In addition, CBS data are used to include relevant contextual variables, such as the regional characteristics of the Dutch provinces. By merging these two data sources, a composite dataset is constructed that is representative of public procurement practices in the Netherlands. This integrated dataset enables the empirical testing of the proposed hypotheses based on both procurement-specific and contextual factors.

To clean the data, empirically test these hypotheses, and visualize the results, RStudio is used as the primary software environment. RStudio was chosen for its flexibility, wide range of statistical packages, and its ability to efficiently handle large datasets (Abdallah, 2024).

3.3. Operationalization of Variables

In this study, several key variables are operationalized to examine the adoption and weighting of MEAT criteria. The dependent variables include the adaptation of MEAT criteria and the weighting of non-price criteria in procurement tenders. These variables reflect the degree to which MEAT is applied and how different factors are prioritized in tender evaluations. The independent variables are factors that influence the selection and weighting of MEAT criteria, as identified in the previous chapter. These include:

Geographical Context

To measure whether a tender has been carried out in an urban or rural environment, reference is made to the CBS. The CBS tracks the number of addresses registered per square kilometre within a postal code area; this is referred to as the Environmental Address Density (EAD) (CBS, 2024). The following five categories are used to classify areas based on their average EAD (CBS, 2025):

- Very strongly urban: average EAD of 2500 or more addresses per km²
- Strongly urban: average EAD of 1500 to 2500 addresses per km²
- Moderately urban: average EAD of 1000 to 1500 addresses per km²
- Weakly urban: average EAD of 500 to 1000 addresses per km²
- Non-urban: average EAD of fewer than 500 addresses per km²

In this study, urban addresses are being defined as addresses with an average EAD of more than 1500 addresses per km². and rural environments as addresses with an average EAD of 1500 or less addresses per km².

Tender Value

In this study, the tender value is operationalized as the Contract Award Notice (CAN) value, which refers to the actual contract value awarded following the procurement process (TED, 2024). The CAN value is preferred over the Call for Competition (CFC) value, which is an initial estimated value of the contract, as the CAN value reflects the final, binding financial terms of the contract (TED, 2024).

The CAN value is reported in euros and is exclusive of Value Added Tax (VAT). Since it represents the actual amount for which the contract is awarded, it provides a more accurate and transparent measure of the tender value (Oyegoke, 2012). Whereas previous research indicates that the CAN value is more reliable for empirical analysis, as it accounts for any adjustments made during the tendering process (Baltrunaite et al., 2021). Moreover, the CAN value ensures a higher degree of consistency across different contracts, making it a more suitable variable for examining procurement outcomes in this study (Gnaldi & Del Sarto, 2024).

Types of Contracting Authorities

In this study, the variable 'Types of Contracting Authorities' refers to the classification of entities responsible for issuing procurement tenders. The classification follows the standard codes provided in the TED database (TED, 2024). Each contracting authority is assigned to one of the categories as mentioned in Table 1.

Table 1

Classification of Contracting Authorities by Legal Type

Code	Category Description (TED, 2024)
1	Ministry or any other national or federal authority, including their regional or local subdivisions
3	Regional or local authority
4	Utilities sectors
5	European Union institution/agency
5A	Other international organisation
6	Body governed by public law
8	Other
N	National or federal Agency / Office
R	Regional or local Agency / Office
Z	Not specified

Contract Complexity

In this study, contract complexity is defined as the degree to which a public contract involves procedural or organisational intricacies that increase the difficulty of execution. To capture this, several structural indicators from the procurement notices are used (TED, 2024). A contract is considered complex if it involves multiple contracting authorities, is issued on behalf of several buyers, includes joint procurement procedures, and is conducted through a dynamic purchasing system. Each of these characteristics introduces layers of coordination, decision-making, and procedural formalities, which together reflect a higher level of contractual complexity. Lastly, the number of award criteria is included as an additional indicator of complexity. Assumed that contracts become more complex as contracting authorities demand more criteria from bidders, increasing the evaluative burden and the scope of required expertise.

Administrative Capacity

Administrative capacity refers to the capabilities of bidding firms to handle the demands of more intricate procurement procedures. Administrative capacity can be inferred from the nature of the tender. Tenders that involve authorities from multiple countries, are likely to be subcontracted, and require participation in joint procurement procedures, generally demand more administrative resources from the supplier (Mahawi & Israel, 2023). These elements suggest a need for organisational adaptability, international legal awareness, and managerial sophistication, all of which are characteristics of high administrative capacity (European Commission, 2016).

Sectors

In this study, the variable 'sectors' refers to the specific policy domains or areas of public service in which the procurement takes place. The classification is based on the sectoral categories used in the TED datasets (TED, 2024), which reflect the primary purpose or thematic focus of the tendered contract. Each sector represents a distinct field of public activity and service provision, allowing for analysis of sector-specific procurement dynamics. The following sectors are included: Defence, Economical and Financial Affairs, Education, Electricity, Environment, General public/services, Health, Housing and community amenities, Production, transport and distribution of gas and heat, Public Order and Safety, Railway services, Recreation, culture and religion, Social protection, Urban railway, tramway, trolleybus or bus services, Water and Other.

These categories provides sufficient thematic granularity to assess how procurement practices and criteria may vary across sectors. Including sector as a variable enables a more nuanced understanding of procurement behaviour and outcomes.

Regions

Without resorting to overly detailed classifications such as municipalities or districts, the variable 'regions' in this study is defined by the geographical boundaries of the Dutch provinces. Provinces provided clear differentiation based on factors such as size, demographic composition, and economic activity, while also serving as a practical and consistent unit for collecting and comparing regional statistics, as highlighted by the OECD (n.d.). The twelve Dutch provinces are Groningen, Friesland, Drenthe, Overijssel, Flevoland,

Gelderland, Utrecht, Noord-Holland, Zuid-Holland, Zeeland, Noord-Brabant, and Limburg (CBS, 2022).

Tender types

In this study, the variable Tender Types is categorised according to the classification used in EU public procurement, as outlined in Directive 2014/24/EU (European Union, 2014a): Works (W), Supplies (U) and Services (S). Public tenders are commonly divided into these three main categories based on the nature of the contract.

Small and Medium-sized Enterprises

According to the European Commission (2003), two factors determine whether an organization qualifies as an SME: the staff headcount and either their turnover or balance sheet total. Table 2 presents the threshold values for these variables.

Table 2

EU Definition of SME Categories Based on Staff and Turnover

Company Category	Staff headcount	Turnover	Or	Balance sheet total
Medium-sized	< 250	≤€ 50 m		≤€ 43 m
Small	< 50	≤€ 10 m		≤€ 10 m
Micro	< 10	≤€ 2 m		≤€ 2 m

Note. Adapted from "SME definition", by European Commission, https://single-market/economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en

Based on this source, a company is operationally defined as an SME if it has a staff headcount of more than 10 and fewer than 250 employees. Additionally, the company must have either a turnover of less than 50 million or more than 2 million, or a balance sheet total of more than 2 million and less than 43 million.

Criteria

In this study, award criteria from public procurement tenders are grouped into predefined categories to enable quantitative analysis while preserving the substantive meaning of each criterion. Although grouping reduces complexity, an overly simplified classification risks omitting the specific focus and strategic intent behind many non-price criteria.

Therefore, instead of relying on broad, aggregated labels, this study adopts a semi-structured categorisation of 18 distinct award criteria. Including: Price, Quality, Delivery Time or Lead Time, Experience and References, Sustainability or Environmental Impact, Innovation, Warranty and After-sales Service, Approach or Vision, Technical Value or Performance, User-Friendliness or Usability, Training and Knowledge Transfer, Staff Qualifications, Collaboration and Communication, Security or Safety, Risk Management, Flexibility or Scalability, Social Impact, and Certifications or Standards.

Each criterion reflects a commonly observed dimension in tender documents and is classified based on its purpose. The classification builds on established literature in public procurement (Bergman & Lundberg, 2011; Brammer & Walker, 2011; Parikka-Alhola & Nissinen,

2012), complemented by practical frameworks used by platforms such as PIANOo and the European Commission.

3.3.1. Overview of variables

After clearly defining and operationalising each variable used in this study, an overview is provided in the Tabel 3. This table provides a brief description of its content, the level of measurement (e.g., nominal, ordinal, interval, or ratio), and the specific hypothesis to which the variable relates. This structured overview facilitates transparency and clarity in how each variable contributes to the empirical testing of the research hypotheses.

Table 3
Overview and Operationalization of Key Variables and Hypotheses

Variable	Description	Measurement level	Relevant Hypothesis
Sector	Public service domain	Nominal	H1
Region	Dutch provinces	Nominal	H1
Tender Type	Nature of procurement	Nominal	H1
Types of Contracting Services	Public entity issuing tender	Nominal	H2
Geographical Context	Urban vs rural location	Dichotomous	H3
Tender Value	Final awarded contract value	Ratio	H4
Contract Complexity	Organisational and procedural difficulty	Ordinal	H4
Administrative Capacity	Administrative capacity of bidding firms	Ordinal	H4
SME	Size of bidding company	Dichotomous	H5
Criteria	Category of award criteria	Nominal	H1 and H3

The operationalization of these variables allows for a thorough investigation.

3.4. Data Selection, Filtering and Merging

The datasets obtained from both CBS and TED, were not specifically designed for this research and therefore contain several irrelevant columns. To ensure the dataset is tailored to the scope of this study, only the relevant columns were selected. This data cleaning process is presented in Table 4 for the CBS dataset.

Table 4
Selected Columns from CBS Dataset and Variable Mapping

Original Column Name	Description	Renamed Column	Relevant for Variable
Postcode-4	Four-digit postcode for regional classification	Postcode	General
Omgevingsadressendichtheid	Addresses per km ²	Environmental Adress Density	Geographical Context

Gemeentenaam2024	Name of the municipality	Municipality	Geographical Context
Provincie	Name of the province	Province	Geographical Context

And in Table 5 for the TED dataset.

Table 5
Selected Columns from TED Dataset and Variable Mapping

Original Column Name	Description (TED, 2024)	Renamed Column	Relevant Hypothesis
YEAR	Year of publication of the notice	YEAR	General
B_MULTUPLE_CAE	There is more than one contracting authority	B_MULTUPLE_CAE	Contract Complexity
CAE_NAME	Official name of contracting Authority	CAE_NAME	General
CAE_POSTAL_CODE	Postal code of contracting authority	CAE_POSTAL_CODE	Geographical Context / Regions
ISO_COUNTRY_CODE	Country for the first listed authority	ISO_COUNTRY_CODE	General
B_MULTUPE_COUNTRY	There are contracting authorities from at least two different countries.	B_MULTUPE_COUNTRY	Administrative Capacity
CEA_TYPE	Type of contracting authority	CEA_TYPE	General
MAIN_ACTIVITY	COFOG divisions correspond only to the classical directive, for the sectoral directive, The classification corresponds to the areas of activity given in art. 8 to 14.	MAIN_ACTIVITY	Sectors
B_ON_BEHALF	This indicates either a central purchasing body or several buyers buying together	B_ON_BEHALF	Contract Complexity
B_INVOLVES_JOINT PROCUREMENT	The contract involves joint procurement	B_INVOLVES_JOINT PROCUREMENT	Administrative Capacity
TYPE OF CONTRACT	Type of contract.	TYPE OF CONTRACT	Tender Type

B_DYN_PURCH_SYST	The notice involves contract(s) based on a dynamic purchasing system	B_DYN_PURCH_SYST	Contract Complexity
CRIT_CODE	Award criteria.	CRIT_CODE	Award Criteria
CRIT_PRICE_WEIGHT	Weight given to price.	CRIT_PRICE_WEIGHT	Award Criteria
CRIT_CRITERIA	Information on award criteria.	CRIT_CRITERIA	Award Criteria
CRIT_WEIGHTS	Information on award criteria weighing.	CRIT_WEIGHTS	Award Criteria
WIN_POSTAL_CODE	Postal code of winning bidder	WIN_POSTAL_CODE	Geographical Context / Regions
B_CONTRACTOR_SME	The contractor is an SME	B_CONTRACTOR_SME	SME
NUMBER_OFFERS	Number of tenders received	NUMBER_OFFERS	Contract Complexity
AWARD_VALUE_EURO	Total final CA value	AWARD_VALUE_EURO	Tender Value
B_SUBCONTRACTED	The contract is likely to be subcontracted	B_SUBCONTRACTED	Administrative Capacity

All these columns from both datasets are merged to create relevant data that makes the research feasible. For example, the EAD from the CBS dataset is linked to the postal codes from the original TED dataset, what brings another six variables as explained in Tabel 6.

Table 6
Additional Variables Constructed for the Final Dataset

New Column Name	Description	Relevant Hypothesis
WIN_POSTAL_CODE_NUMBERS	Four first numbers of the postal code of winning bidder	Geographical Context / Regions
WIN_POSTAL_CODE_EAD	The Environment Adress Density of the postal code of winning bidder	Geographical Context / Regions
WIN_MUNICIPALITY	The municipality of the winning	Geographical Context / Regions
WIN_PROVINCE	The province of the winning bidder	Geographical Context / Regions
CAE_POSTAL_CODE_NUMBERS	Four first numbers of the postal code of winning bidder	Geographical Context / Regions
CAE_POSTAL_CODE_EAD	The Environment Adress Density of the postal code of the contracting authority	Geographical Context / Regions
CRIT_COUNT	Number of criteria involved in a tender	General

3.5. Data Cleaning, Final Data and Preprocessing

Prior to conducting statistical analyses, the dataset was subjected to a series of preparatory steps to ensure its quality, integrity, and suitability for quantitative analysis. These steps included data cleaning, finalizing the analytical sample, and testing for key statistical assumptions. Each of these procedures was essential to enhance the validity and reliability of the results, and to minimize the risk of biased or misleading conclusions. The subsections below outline the data preparation process in detail.

3.5.1. Data Cleaning

First, all missing values were identified and treated accordingly. Observations with incomplete data on key variables were removed to ensure reliability. Next, filters were applied in Excel to exclude irrelevant observations that did not meet goal of the study. Specific filters include:

- YEAR = 2021, 2022 and 2023
- ISO_COUNTRY_CODE = NL
- B_MULTIPLE_COUNTRY = No
- CRIT_CODE = M
- B_CONTRACTOR_SME = 0 and 1

Finally, the award criteria (CRIT_CRITERIA) and their corresponding weights (CRIT_WEIGHTS) have been split into separate columns, making them useful for analysis. These cleaning decisions aimed to reduce noise and ensure consistency across observations, with full focus on the research aim.

3.5.2. Normality Check

Initial exploration of the variable 'award value' revealed a highly skewed, non-normal distribution, characterised by extreme outliers and many unusually low contract values.

To address this, a lower threshold of €1,000 was applied, excluding any procurement observations below this amount. This decision was grounded in both practical and legal reasoning. PIANOo, the Dutch centre of expertise for public procurement, explains that an abnormally low tender occurs when a contracting authority encounters a bid so low that there are legitimate concerns the bidder has either made an error or submitted an unrealistic price to secure the contract (PIANo). This suggests that extremely low award values, such as €1 or €100, are unlikely to reflect genuine public procurement and may instead indicate symbolic bids, mistakes, or inconsistencies in the data.

According to the Dutch Public Procurement Act 2012 and the accompanying Proportionality Guide (Rijksoverheid, 2016), contracting authorities are required to observe proportionality between the procurement method and the nature and value of the contract. Similarly, the EU Directive 2014/24/EU stresses the obligation to estimate contract values reasonably and transparently to ensure fair and proportionate competition. These legal frameworks imply that contracts valued far below realistic market rates are not representative of legitimate tendering processes. After excluding observations below €1,000, the distribution

was further normalised by identifying and filtering out extreme statistical outliers using z-scores.

Furthermore, in any statistical tests specifically aimed at exploring the interaction between procurement types and tender value, relevant threshold values are considered. This is to ensure that comparisons between high and low tender values are meaningful and not distorted by structural differences in typical contract values across procurement categories. For instance, works contracts generally involve substantially higher values than services or supplies, due to the nature of construction projects. Applying consistent thresholds, or conducting stratified analyses where appropriate, helps to mitigate the risk of misinterpreting such structural disparities as statistical anomalies or substantive findings.

This multiple-step approach ensured a more robust dataset for analysis and helped improve the validity of subsequent statistical procedures, when testing hypothesis on tender value.

3.5.3. Final Data

The final dataset, after merging, consisted of $n = 4957$ observations and $k = 43$ variables. The sample size meets academic standards for quantitative analysis, which typically recommend a minimum of 10–15 observations per predictor (Cohen, 1988).

The final data includes all types of variables and measurement levels as explained in Appendix A.

3.6. Analytical Methods

To test the five hypotheses, a combination of statistical techniques was employed, tailored to the type of dependent variable and the structure of each hypothesis. A significance level of $\alpha = 0.05$ is used throughout. This threshold is commonly applied in empirical research to limit the probability of a Type I error—incorrectly rejecting a true null hypothesis—to 5% (Cumming, 2012; Field, 2013). It reflects a widely accepted balance between statistical rigour and practical interpretability (Lakens, 2017).

Since the variable representing the weight assigned to price is not expected to follow a normal distribution, this is first assessed using a Shapiro-Wilk test. If non-normality is confirmed, the Kruskal-Wallis test is applied to examine whether significant differences in price weighting exist across sectors, regions, and tender types. Where these tests yield significant results, post-hoc pairwise comparisons are conducted using Dunn's test with Bonferroni correction.

To assess whether different types of contracting authorities assign different levels of importance to non-price criteria, the Kruskal-Wallis test is again used, followed by post-hoc analysis where applicable.

To investigate whether tenders in urban areas are more likely to include sustainability or innovation criteria, chi-squared tests of independence are conducted. These compare the frequency of such criteria between urban and rural contracting contexts.

For hypotheses involving binary outcomes (e.g., the likelihood of SME participation), binary logistic regression models are applied. This approach allows the modelling of probabilities based on predictors such as tender complexity or non-price weighting.

To analyse how factors such as tender value, contract complexity, and administrative capacity influence the selection and weighting of MEAT criteria, Ordinary Least Squares (OLS) regression models are used. These models include both main effects and interaction terms, allowing for the assessment of combined influences on non-price weighting.

In the context of Hypothesis 4, a Generalized Additive Model (GAM) is also estimated as a diagnostic tool to explore potential non-linear relationships between predictors (such as contract complexity) and MEAT selection. This step ensures that the assumptions of linearity in the OLS model are appropriate or reveals when a flexible, non-parametric approach is more suitable.

Finally, to examine whether these same factors affect SME participation in tenders, logistic regression analysis is applied. An additional logistic regression model with interaction terms is used to test whether high complexity and high non-price weighting jointly reduce the likelihood of SME involvement.

Together, these methods provided a comprehensive statistical framework for evaluating variation in MEAT implementation and identifying the key drivers behind procurement decisions.

3.7. Validity, Reliability and Ethical Considerations

Validity refers to the degree to which an instrument or method measures what it is intended to measure (Wood, 1987). In this study, it is critical to ensure that the measures of the adoption and weighting of MEAT criteria in Dutch public procurement accurately reflect the intended constructs, namely how non-price criteria are selected and weighted by contracting authorities.

To ensure content validity, the qualitative criteria used in the analysis is carefully selected based on a comprehensive review of the literature, as well as existing public procurement frameworks such as the Dutch Public Procurement Act and the EU directives. By aligning the criteria used for evaluation with these official guidelines, content validity is strengthened, as the measures used in the study reflect the intended breadth of the procurement processes. The dataset covers a balanced distribution across sectors, allowing for generalizability of the results while ensuring internal validity (Saunders et al., 2023).

Reliability refers to the consistency and repeatability of the measurement process (Cohen et al., 2013) and is addressed by employing standardised coding protocols within R Studio. Inter-coder reliability is ensured through repeated consistency checks, and test-retest reliability is assessed where applicable. The use of scripted data processing further enhances reproducibility (Sill, 2014).

The dataset is sourced from a publicly accessible database, ensuring that no confidential

or personal data are involved. Nevertheless, ethical considerations are paramount; All data gathered from TED is anonymized to ensure that the identities of the contracting authorities and bidders are protected, and the analysis complies with data protection guidelines and ethical research standards.

3.8. Limitations

Despite the robust quantitative approach, this study faces several limitations. First, it relies entirely on secondary data from TED and CBS, which makes the analysis dependent on the accuracy, completeness, and consistency of these sources. Key variables—such as contract complexity and administrative capacity—are operationalized through proxies, which may affect construct validity.

Second, the study focuses solely on Dutch public procurement between 2021 and 2023. While this ensures relevance, it limits the generalizability of the findings across time and to other EU member states. The exclusion of tenders with missing data (e.g., on award criteria) may also introduce selection bias.

Moreover, some classifications, such as the urban and rural distinction, are based on standardized but somewhat arbitrary thresholds, which may oversimplify more nuanced geographic realities.

Lastly, while assumptions underlying statistical techniques like ANOVA and regression (e.g., normality, homoscedasticity) have been tested as far as possible, these methods remain sensitive to violations, particularly in the presence of skewed distributions or outliers.

4. Results

Based on the methodology described in Chapter 3, this chapter presents the empirical findings from the case studies. It summarizes the procurement approaches of each organization, with a focus on their interpretation and application of MEAT criteria. The results are structured thematically to highlight similarities, differences, and strategic considerations across the cases.

4.1. Descriptive Overview of Award Criteria Usage

The dataset analysed provides a comprehensive overview of Dutch public procurements from 2021 to 2023, revealing notable patterns and variations in procurement practices.

To start, Table 7 presents descriptive statistics for the continuous variables in the dataset. For each variable, the number of observations (N), minimum, maximum, mean, median, and the first and third quartiles are reported to provide a comprehensive overview of their distribution.

Table 7

Descriptive Statistics for Continuous Variables (n = 4.957)

Variable	N	Min	Q1	Median	Mean	Q3	Max
CRIT_PRICE_WEIGHT	4957	0.00	30.00	40.00	41.73	60.00	100.00
CRIT_WEIGHT_1	4957	0.00	40.00	60.00	53.51	70.00	100.00
CRIT_WEIGHT_2	562	2.00	10.00	20.00	19.86	25.00	75.00
CRIT_WEIGHT_3	531	3.00	10.00	16.00	18.54	25.00	50.00
CRIT_WEIGHT_4	208	4.00	10.00	15.00	15.84	20.00	50.00
CRIT_WEIGHT_5	59	4.00	10.00	10.00	11.83	15.00	30.00
CRIT_WEIGHT_6	12	5.00	7.25	10.00	11.50	15.00	20.00
CRIT_WEIGHT_7	1	10.00	10.00	10.00	10.00	10.00	10.00
CRIT_COUNT	4957	1.000	2.000	2.000	2.271	2.000	8.000
NUMBER_OFFERS	4957	1.000	2.000	3.000	3.066	4.000	31.000
AWARD_VALUE_EURO	2592	1100	145599	375000	2899970	1070000	400000000
WIN_POSTAL_CODE_EAD	4957	7	846	1396	1804	2277	11518

A key aspect of the evaluation process is the weighting assigned to price. This varies considerably across tenders: in 41 cases, price was the sole criterion, accounting for 100% of the evaluation weight (CRIT_WEIGHT_1 = 0%), while in 268 tenders, price was not considered at all (CRIT_PRICE_WEIGHT = 0%). This indicates that while MEAT is legally mandatory, authorities sometimes deviate in practice. On average, price carried a weight of approximately 41.73% throughout the period.

The MEAT award criteria are widely applied. Tenders exhibited a wide range in the number of award criteria applied, from a minimum of one to as many as eight criteria. Most procurements most included two criteria, with four and five criteria also frequently observed. In addition, the first award criterion after price has a median of 60, whereas price itself only holds a median of 40. This reinforces the shift from valuing solely on price towards focusing

on a broader range of award criteria. This diversity reflects the varied complexity and priorities of public tendering processes.

When examining the nature of the evaluation criteria beyond price, quality emerges as the dominant factor, specified in 93% of tenders. This underlines the emphasis placed on delivering high standards in public contracts. Other criteria, though less common, include 'Approach / Vision' (11%), 'Sustainability / Environmental' considerations (6%), and 'Technical Value / Performance' (3%). Concrete figures for all categories and award criteria are summed in Table 8.

Table 8
Frequency of Award Criteria Across All Tenders

Category	Count	Percentage
Price	84	1,70%
Quality	4596	93,24%
Delivery Time / Lead Time	64	1,30%
Experience / References	89	1,81%
Sustainability / Environmental	271	5,50%
Innovation	29	0,59%
Warranty / After-sales Service	37	0,75%
Approach / Vision	530	10,75%
Technical Value / Performance	152	3,08%
User-Friendliness / Usability	17	0,34%
Training / Knowledge Transfer	12	0,24%
Staff Qualifications	133	2,70%
Collaboration / Communication	107	2,17%
Security / Safety	23	0,47%
Risk Management	13	0,26%
Flexibility / Scalability	18	0,37%
Social Impact	97	1,97%
Certifications / Standards	22	0,45%

Note: Percentages are calculated based on the total number of observations in the dataset (N = 4957).

Furthermore, Table 9 presents a frequency distribution for selected categorical variables. Only variables with at least two distinct categories were included, excluding control variables with constant values. Additionally, variables with an excessive number of unique categories (e.g., identifiers or location codes) were omitted to maintain clarity and interpretability.

Table 9
Distribution of Key Categorical Variables in the Dataset

Variable		Count	Percentage	Cat.
YEAR	2021	1431	28.49%	3
	2022	2057	41.46%	
	2023	1469	29.69%	

B_MULTIPLE_CAE	0	4905	98.95%	2
	1	52	1.05%	
CEA_TYPE	1	1965	3.95%	8
	3	1796	36.18%	
	4	97	2.07%	
	5	11	0.22%	
	6	2548	51.33%	
	8	177	3.57%	
	N	118	2.38%	
	R	15	0.302%	
MAIN_ACTIVITY	Economical and Financial Affairs	77	1.55%	13
	Education	1824	36.74%	
	Environment	51	1.03%	
	General public / Services	2115	42.61%	
	Health	122	2.46%	
	Housing and community amenities	21	0.42%	
	Other	375	7.55%	
	Production, transport, distribution of gas and heat	29	0.58%	
	220	4.43%		
	Public Order and Safety			
	Railway services	35	0.71%	
	Recreation, culture and religion	20	0.40%	
	Social protection	46	0.93%	
	Urban railway, tramway, trolleybus or bus services	22	0.44%	
	B_ON_BEHALF	0	4905	
1		52	1.05%	
B_INVOLVES_JOINT_PROCUREMENT	0	4905	98.95%	2
	1	52	1.05%	
TYPE OF CONTRACT	S	2800	56.43%	3
	U	1975	39.87%	
	W	182	3.71%	
B_DYN_PURCH_SYST	0	4422	89.22%	2
	1	535	10.78%	
B_CONTRACTOR_SME	0	1596	32.21%	2
	1	3361	67.79%	
B_SUBCONTRACTED	0	4922	99.27%	2
	1	35	0.72%	

Turning to the organisations responsible for issuing tenders, more than half (51%) were bodies governed by public law, such as universities, public hospitals, and housing associations. Regional and local authorities, including municipalities, provinces, and regional water authorities, accounted for a further 36%. This distribution highlights the diversity of public entities engaging in procurement activities across the Netherlands.

Collaborative tenders involving more than one contracting authority were relatively rare, making up only 1.05% of all tenders. In contrast, the bidder landscape was dominated by SMEs which constituted nearly 68% of all bidding organisations. Notably, subcontracting was also uncommon, occurring in only 0.72% of tenders, suggesting that most contracts were awarded directly to the primary bidders.

From a sectoral perspective, the general public / services sector accounted for the largest share of tenders, representing 43% of the total. Followed closely by the education sector at 37%, reflecting the substantial procurement activities in these public domains.

The data shows that service-oriented contracts dominate the procurement landscape, comprising 56% of all tenders. Supplies represent the next largest category at 40%, while works constitute the smallest portion, with only 4% of tenders awarded in this category.

Lastly, Figure 4 provides a clear visualisation of the geographical distribution of winning bidders throughout the provinces of the Netherlands. Whereas Figure 3 presents a more detailed perspective through the municipalities.

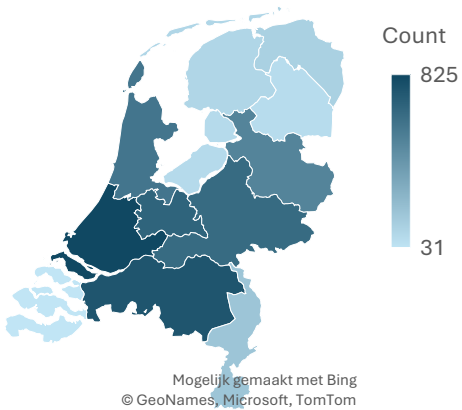


Figure 3
Spatial Distribution of Winning Bidders Across Dutch Provinces

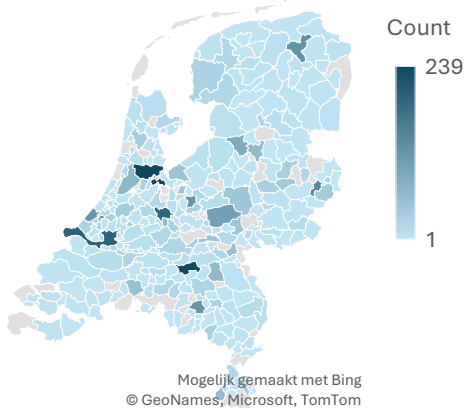


Figure 4
Spatial Distribution of Winning Bidders Across Dutch Municipalities

Together, these insights present a detailed picture of the procurement environment, setting the stage for further analysis and hypothesis testing in subsequent sections.

4.2. Variation in MEAT Criteria by Sector, Region, and Tender Type

In this statistical analysis, the variable CRIT_PRICE_WEIGHT is considered the dependent variable. This choice is deliberate: although the MEAT principle emphasizes non-price, the relative weight of price is a direct inverse indicator of the emphasis on non-price elements. In other words, a lower price weight typically reflects a greater emphasis on MEAT criteria. Therefore, by analysing variation in CRIT_PRICE_WEIGHT, variation in the adoption and implementation of MEAT principles across sectors, regions, and tender types is indirectly assessed

The independent variables include MAIN_ACTIVITY, WIN_PROVINCE, and TYPE_OF_CONTRACT. These variables are used to test the first hypothesis, whether the

adoption and weighting of MEAT criteria in Dutch public procurement varies significantly across sectors, regions, and tender types.

The analysis starts with a Shapiro–Wilk test to check if the data are normally distributed. The test produced a W -value of 0.97119 and a p -value less than 2.2×10^{-16} . Since this p -value is below the significance level of 0.05, the null hypothesis of normal distribution is rejected (Shapiro & Wilk, 1965). This means the data are not normally distributed, so ANOVA to test differences is not suitable. Instead, a non-parametric Kruskal–Wallis test was used, applied separately for each independent variable in the following three sections.

4.2.1. Variation by Sector

The results of the Kruskal–Wallis test across sectors are included in Table 10.

Table 10
Kruskal–Wallis Test Results for Regional Variation in MEAT Use

Statistic	Value
Kruskal–Wallis Chi-squared	404.93
Degrees of freedom	15
p -value	$2.2e-16^{***}$
Epsilon squared (ϵ^2)	0.0786

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Given the extremely low p -value ($p > .001$), the null hypothesis that all 16 sectors have the same median value for CRIT_PRICE_WEIGHT is rejected. This indicates that there is a statistically significant differences in the median weighting of the price criterion among at least two sectors. The associated effect size, expressed as epsilon squared ($\epsilon^2 = 0.0786$), suggest a small to moderate affect (Tomczak & Tomczak–Łukaszewska, 2014). In practical terms, approximately 7.9% of the variance in price weighting can be attributed to sectoral differences.

However, the Kruskal–Wallis test does not identify which specific sectors differ from each other. To explore this further, a post-hoc analysis was conducted using Dunn’s test with Bonferroni correction, a conservative approach to adjust for the increased risk of Type I errors due to multiple comparisons (Dunn, 1964). Out of the 78 possible sector pairs, 29 showed statistically significant differences in CRIT_PRICE_WEIGHT (adjusted $p \leq .05$). Selected results are displayed in Table 11.

Table 11
Post-Hoc Dunn Test with Bonferroni Correction by Sector

First Sector	Second Sector	Z	P-unadjusted	P-adjusted
Economical and Financial Affairs	Education	-12.7267	$4.2014e-37^{***}$	$5.0417e-35^{***}$
Education	Public Order and Safet	12.5430	$4.3449e-36^{***}$	$5.2139e-34^{***}$
Education	General public / services	11.2602	$2.0637e-29^{***}$	$2.4764e-27^{***}$

Economical and Financial Affairs	General public / services	-9.6610	4.4162e-22***	5.2994e-20***
Economical and Financial Affairs	Other	-8.6261	6.3455e-18***	7.6146e-16***

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

The median values of CRIT_PRICE_WEIGHT for each sector are reported in Table 12.

Table 12

Median Price Weighting Across Sectors

Sector	Median	N
Environment	50	51
Production, transport and distribution of gas and heat	50	29
Railway services	50	35
Urban railway, tramway, trolleybus or bus services	50	22
Education	40	1824
General public \ services	40	2115
Housing and community amenities	40	21
Other	40	375
Recreation, culture and religion	40	20
Social protection	40	46
Health	30	122
Public Order and Safety	30	220
Economical and Financial Affairs	10	77

These results clearly indicate that the importance attributed to price varies substantially between sectors. Sectors such as Environment and Railway Services assign a relatively high weight to price (median = 50), whereas others, including Economic and Financial Affairs (median = 10) and Public Order and Safety (median = 30), place significantly less emphasis on price criteria. The Dunn's test confirms that many of these inter-sectoral differences are statistically significant.

4.2.2. Variation by Region

The second independent variable 'region' within the first hypothesis is tested using the same non-parametric method as in the previous section. The results of the Kruskal-Wallis test across the twelve Dutch provinces are presented in Table 13.

Table 13

Kruskal-Wallis Test Results for Regional Variance in MEAT Use

Statistic	Value
Kruskal-Wallis Chi-squared	202.72
Degrees of freedom	11
p-value	2.2e-16***
Epsilon squared (ϵ^2)	0.0384

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

The null hypothesis of equal medians across all regions is rejected ($p < .001$), indicating significant variation in CRIT_PRICE_WEIGHT among the twelve provinces. The effect size, as indicated by epsilon squared ($\epsilon^2 = 0.0384$), suggest a small but meaningful effect.

As in the sectoral analysis, a Dunn's post-hoc test with Bonferroni correction was applied to identify specific differences between region pairs. Out of 66 possible comparisons, 29 yielded statistically significant results (adjusted $p \leq .05$). The most notable contrasts are displayed in Table 14.

Table 14

Post-Hoc Dunn Test with Bonferroni Correction by Region

First Sector	Second Sector	Z	P-unadjusted	P-adjusted
Noord-Holland	Overijssel	-10.9912	4.2118e-28***	2.7798e-26***
Overijssel	Zuid-Holland	8.8956	5.8111e-19***	3.8353e-17***
Overijssel	Utrecht	-8.4990	1.9123e-17***	1.2621e-15***
Gelderland	Noord-Holland	-8.3633	6.0977e-17***	4.0245e-15***
Limburg	Noord-Holland	-6.4511	1.1106e-10***	7.3299e-09***

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Median values of CRIT_PRICE_WEIGHT per region are listed in Table 15.

Table 15

Median Price Weighting Across Dutch Provinces

Region	Median	n
Drenthe	50	75
Limburg	50	192
Overijssel	50	522
Flevoland	40	86
Friesland	40	106
Gelderland	40	650
Groningen	40	133
Noord-Brabant	40	758
Utrecht	40	685
Zeeland	40	31
Zuid-Holland	40	827
Noord-Holland	35	597

These results indicate statistically significant regional variation in the importance assigned to price in awarded tenders. Regions such as Overijssel, Drenthe, and Limburg show a stronger emphasis on price (median = 50), while regions including Noord-Holland (median = 35) and several provinces (e.g., Zuid-Holland, Utrecht, Gelderland) exhibit lower median price weightings. The most pronounced contrasts were observed between Noord-Holland and Overijssel ($Z = -10.99$), and between Overijssel and Zuid-Holland ($Z = 8.90$).

4.2.3. Variation by Tender Type

The third independent variable, Tender Type, within the first hypothesis was analysed using the same non-parametric procedures. The results of the Kruskal-Wallis test across the three tender types are reported in Table 16.

Table 16
Kruskal-Wallis Test Results for Tender Type Differences in MEAT Use

Statistic	Value
Kruskal-Wallis Chi-squared	483.68
Degrees of freedom	2
p-value	2.2e-16***
Epsilon squared (ϵ^2)	0.0971

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

The test yields a statistically significant result ($p < .001$), indicating that at least one group differs in median CRIT_PRICE_WEIGHT. The effect size ($\epsilon^2 = 0.0971$) reflects a moderate association. Again, a post-hoc Dunn's test with Bonferroni correction was applied to identify pairwise differences. All three comparisons were statistically significant (adjusted $p \leq .05$), as shown in Table 17.

Table 17
Post-Hoc Dunn Test with Bonferroni Correction by Tender Type

First Type	Second Type	Z	P-unadjusted	P-adjusted
S	U	-21.8970	2.7726e-106***	8.3178e-106***
S	W	-5.5222	3.3470e-08***	1.0041e-07***
U	W	2.8901	3.8507e-03***	1.1552e-02***

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Median values of CRIT_PRICE_WEIGHT across the three tender types are shown in Table 18.

Table 18
Median Price Weighting by Tender Type

Tender Type	Median	n
Supplies (U)	50	1979
Services (S)	40	2801
Works (W)	40	184

The results show that price weighs more heavily in the evaluation of Supplies contracts (median = 50) than in Services or Works (both median = 40). The strongest difference was observed between Services and Supplies ($Z = -21.90$), followed by Services and Works ($Z = -5.52$). A smaller but significant difference was also detected between Supplies and Works ($Z = 2.89$).

These results lead to a partial rejection of Hypothesis 1. While MEAT criteria are indeed more prevalent in tenders from higher government levels and within certain procurement sectors,

the observed effects were small. This suggests that although institutional context plays some role, it does not strongly determine the use of MEAT criteria.

4.3. Impact of Contracting Authority Type on Non-Price Criteria Weighting

To assess whether the type of contracting authority affects the weighting of non-price criteria in MEAT evaluations, a non-parametric analysis was performed using the variable CRIT_WEIGHT_1, which captures the weight assigned to the first listed non-price criterion in each tender. The independent variable, CAE_TYPE, categorizes contracting authorities into various organisational types (e.g., ministries, national agencies, utilities).

Assumption checks indicated that a parametric approach was unsuitable. The Shapiro-Wilk test confirmed a significant deviation from normality ($W = 0.973, p < .001$), while Levene's test revealed unequal variances across groups ($F(7, 4921) = 2.63, p = .010$) (Brown & Forsythe, 1974). Consequently, the Kruskal-Wallis test was applied (Table 19).

Table 19

Kruskal-Wallis Test for Differences by Contracting Authority Type

Statistic	Value
Kruskal-Wallis Chi-squared	155.68
Degrees of freedom	7
p-value	2.2e-16***
Epsilon squared (ϵ^2)	0.0302

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

The results show a statistically significant difference in CRIT_WEIGHT_1 ($p < .001$) across contracting authority types, with a small to moderate effect size ($\epsilon^2 = 0.0302$).

To determine where these differences lie, a post-hoc Dunn's test with Bonferroni correction was performed. The results, summarized in Table 20, reveal that national agencies (type N) assign significantly higher non-price weights compared to almost all other categories, including ministries (type 1), regional/local authorities (type 3), utilities (type 4), public law bodies (type 6), and Other (type 8).

Table 20

Post-Hoc Dunn Test with Bonferroni Correction by Contracting Authority

First CAE	Second CAE	Z	P-unadjusted	P-adjusted
6	N	-10.7447	6.2774e-27***	1.7577e-25***
4	N	-9.7290	2.2696e-22***	6.3550e-21***
3	N	-9.4946	2.2106e-21***	6.1897e-20***
8	N	-6.7882	1.1356e-11***	3.1798e-10***
1	N	-5.7148	1.0983e-08***	3.0753e-07***

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Median values of CRIT_WEIGHT_1 per authority type are displayed in Table 21.

Table 21*Median Price Weighting by Contracting Authority Type*

CAE Type	Description	Median	n
1	Ministry or any other national or federal authority	60	195
3	Regional or local authority	60	1796
4	Utilities sectors	50	97
5	European Union institution/agency	60	11
6	Body governed by public law	50	2548
8	Other	60	177
N	National or federal Agency / Office	85	118
R	Regional or local Agency / Office	60	15

The analysis demonstrates that national agencies (type N) assign markedly higher weightings to non-price criteria (median = 85) than all other contracting authority types, particularly compared to utilities and public law bodies (both median = 50).

These findings support Hypothesis 2. The organisational nature of the contracting authority significantly influences procurement priorities. In particular, national agencies assign notably higher weights to non-price criteria, suggesting that structural and institutional characteristics shape how quality considerations are embedded in procurement decisions.

4.4. Urban–Rural Differences in Emphasis on Sustainability and Innovation

This hypothesis investigates whether the level of urbanisation is associated with the inclusion of sustainability and innovation criteria in MEAT-based procurement procedures. It was hypothesised that tenders in more urbanised areas would more frequently include criteria related to sustainability and innovation.

To test this, two binary dependent variables were constructed. ‘Sustainability inclusion’: whether the award criteria explicitly referred to sustainability or environmental aspects. And ‘Innovation inclusion’: whether innovation was mentioned among the award criteria.

The independent variable was the level of urbanisation, operationalised using CBS urbanisation classes as captured in the ‘CAE_EAD’ variable (Chapter 3). Chi-square tests of independence were used to assess the association between urbanisation class and the inclusion of these criteria (Pearson, 1900). Cramér’s V was reported as a measure of effect size (Cramér, 1999)

Before analysis, assumptions regarding expected cell frequencies were checked. For sustainability, all expected counts exceeded 5, satisfying Cochran’s rule. For innovation, 80% of expected cell counts met this threshold, also meeting the minimum requirement (Cochran, 1954). Table 22 presents the frequency and percentage of sustainability and innovation inclusion by urbanisation class.

Table 22*Inclusion Rates of Sustainability and Innovation Criteria by Urbanisation Level*

Area classification	Total	Sustainability Count	Sustainability Percentage	Innovation Count	Innovation Percentage
Very strongly urban	2108	115	5.46%	16	0.76%
Strongly urban	1444	44	3.05%	9	0.62%
Moderately urban	946	35	3.70%	3	0.32%
Weakly urban	283	22	7.77%	1	0.35%
Non-urban	176	13	7.39%	1	0.57%

The inclusion of sustainability criteria showed modest variation across urbanisation levels. For instance, weakly urban and non-urban areas had higher inclusion rates (7.8% and 7.4% respectively), while strongly urban areas had the lowest (3.0%). These patterns are illustrated in Figure 5 and Figure 6.

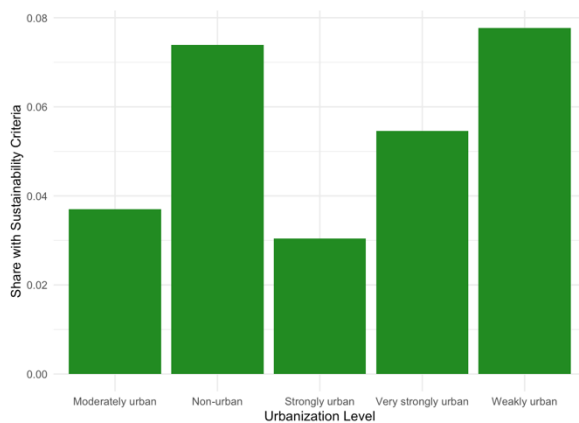


Figure 6
Sustainability Criteria Inclusion in MEAT Tenders by Urbanisation level

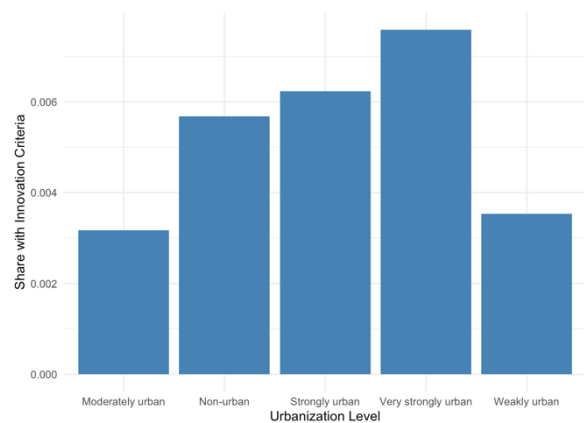


Figure 5
Innovation Criteria Inclusion in MEAT Tenders by Urbanisation level

The Chi-square test for sustainability was statistically significant, $\chi^2(4) = 22.71, p < .001$, indicating a non-random distribution of sustainability inclusion across urbanisation levels.

However, the effect size was very weak, Cramér's $V = 0.068$. In contrast, the inclusion of innovation criteria was consistently low across all classes, with no statistically significant association: $\chi^2(4) = 2.44, p = 0.6546$; Cramér's $V = 0.022$, indicating a negligible effect.

These results lead to a partial rejection of Hypothesis 3. While the inclusion of sustainability criteria does differ significantly across levels of urbanisation, the effect size is very small, suggesting only a weak association. Moreover, there is no evidence of any systematic relationship between urbanisation and the inclusion of innovation criteria. Overall, the

findings suggest that urban–rural differences play a limited role in shaping the use of sustainability–related criteria, and no meaningful role in the use of innovation criteria.

4.5. Tender Value, Complexity, and Administrative Capacity as Drivers of MEAT Design

This section investigates whether the context of a public procurement procedure, in terms of its economic value, structural complexity, and administrative coordination, affects the selection and weighting of MEAT criteria.

Hypothesis 4 posits that the use of MEAT criteria is not determined in isolation but is shaped by contextual factors. Specifically, it proposes that high–value and complex tenders are more likely to include MEAT criteria and assign them greater weight, particularly when sufficient administrative capacity is available to manage these procedures effectively.

In this analysis, two composite variables are developed to better capture the contextual dimensions of public procurement procedures: contract complexity and administrative capacity. Both variables are constructed using a set of underlying indicators that, taken together, reflect the level of substantive and procedural complexity involved in a tender, as well as the administrative effort required to manage it effectively.

Contract complexity refers to the degree of complexity embedded in the design and execution of a procurement process. This complexity is derived from several features of the tender. One aspect is whether multiple contracting authorities are involved, which typically requires more coordination and decision–making across institutional boundaries. Another factor is whether the contracting authority is acting on behalf of other organizations, introducing additional layers of responsibility and oversight. The use of a dynamic purchasing system also contributes to complexity, as this procurement method, while offering greater flexibility, tends to involve more technical and procedural requirements. In addition to these binary characteristics, the number of offers received and the number of award criteria used are also considered. A higher number of bids generally indicates a more competitive and potentially demanding evaluation process, while a greater number of award criteria suggests a more elaborate and nuanced decision–making framework. When all these elements are present at high levels, for instance, when multiple authorities are involved, the procedure is conducted on behalf of others, a dynamic purchasing system is used, many offers are received, and numerous award criteria are applied, the contract is considered to be highly complex.

Administrative capacity, in contrast, reflects the institutional coordination and managerial resources required to organize and oversee a procurement process. This variable is based on features that signal a need for additional administrative effort. One such feature is whether the procurement spans multiple countries, which typically involves additional legal, linguistic, and procedural challenges. Another is the involvement in a joint procurement process, where two or more entities collaborate in a single tender, a setup that demands shared governance and careful alignment of responsibilities. Lastly, the presence of subcontracting arrangements within the contract adds further complexity, as it usually requires the contracting authority to monitor performance across multiple layers of delivery.

The more of these features are present in a given tender, the higher the level of administrative capacity needed to manage it effectively.

In summary, both contract complexity and administrative capacity are composite constructs built from key characteristics within the dataset. The more of these complexity-related features are present, the higher the score assigned to each respective variable.

Before testing the hypothesis, diagnostic checks confirmed the suitability of the regression approach. Multicollinearity was assessed using Generalized Variance Inflation Factors (GVIF), all of which remained well below the conservative threshold of 5 (James et al., 2013). Suggesting no problematic collinearity (Table 23). Second, a GAM was estimated to check for non-linearity (Wood, 2017). The GAM revealed a non-linear relationship between Contract Complexity and MEAT selection ($edf = 6.25, p < .001$), while Tender Value followed a linear pattern ($edf = 1.00, p = .312$). Sufficient variation was confirmed across all predictors.

Table 23
GVIF Scores for Multicollinearity Diagnostics of Core Predictors

Predictor	GVIF	Threshold	Interpretation
Tender Value	1.62	< 5	Acceptable
Contract Complexity	1.48	< 5	Acceptable
Administrative Capacity	1.21	< 5	Acceptable

The first analysis examined whether MEAT criteria were more likely to be used in high-value or complex tenders. A logistic regression with interaction terms revealed no significant effects, as can be seen in Table 24.

Table 24
Logistic Regression Model on the Use of MEAT Criteria

Predictor	Estimate	Std. Error	Z-value	p-value	Odds Ratio	CI lower bound	CI upper bound
(Intercept)	4.181	12.069	0.346	0.729	65.4465	3.4872e-09	1.2283e+12
Tender Value	0.655	24.430	0.027	0.979	1.9251	3.0873e-21	1.2003e+21
Contract Complexity	-0.622	3.396	-0.183	0.855	0.5369	6.9017e-04	4.1772e+02
Administrative Capacity	1.818	88.884	0.020	0.984	6.1592	1.3532e-75	2.8035e+76
Tender Value × Contract Complexity	-0.554	3.976	-0.139	0.889	0.5749	2.3730e-04	1.3928e+03
Tender Value × Administrative Capacity	-0.089	179.857	0.000	1.000	0.9149	7.3608e-154	1.13712e+153

Contract Complexity × Administrative Capacity	0.084	24.990	0.003	0.997	1.0881	5.8243e-22	2.0329e+21
Tender Value × Contract Complexity × Administrative Capacity	0.075	28.803	0.003	0.998	1.0781	3.2768e-25	3.5469e+24

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Neither the main effects nor their interactions significantly predicted whether a criterion would be MEAT-based. The pseudo- R^2 (McFadden) was low (0.043) (McFadden, 1972), and the odds ratios displayed wide confidence intervals, indicating high model uncertainty (Cornfield, 1957). This result contradicts the expectation that MEAT criteria are more likely to be used in complex or high-value tenders.

The picture becomes more nuanced when turned to the OLS regression model that looked at the weighting of MEAT criteria. Whereas, several important and statistically significant effects emerged. Outcomes are included in Table 25.

Table 25

OLS Regression Model Predicting Non-Price Weighting

Predictor	Estimate	p-value	Interpretation
Contract complexity	-14.69	<0.001***	Higher complexity leads to lower MEAT weight
Value × Complexity (interaction)	-2.11	0.002**	High-value + high-complexity → lower weight
Complexity × Administrative capacity	+1.96	<0.001***	High capacity mitigates complexity effect
Value × Complexity × Capacity (three-way interaction)	+0.35	0.064	Slight tendency to increase MEAT weight

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

In contrast, the linear regression revealed clear and statistically significant effects. Contract Complexity had a strong negative effect on MEAT weighting ($\beta = -14.69$, $p < .001$). In more complex tenders, individual MEAT criteria received lower weights—likely due to more extensive evaluation matrices. Administrative Capacity moderated this effect. In tenders with higher administrative capacity, the negative influence of complexity was significantly reduced ($\beta = +1.96$, $p < .001$). The interaction between Tender Value and Complexity was also significant and negative ($\beta = -2.11$, $p = .002$), suggesting that in high-value and complex tenders, individual MEAT criteria receive even lower weight.

A three-way interaction between Tender Value, Complexity, and Capacity was marginally significant ($\beta = +0.35$, $p = .064$), indicating a subtle tendency for MEAT weights to increase

again in tenders that are simultaneously high in value, complexity, and administrative capacity.

These findings support a more nuanced interpretation of the hypothesis. While MEAT criteria are not used more frequently in complex or high-value tenders, their weighting is clearly influenced by these contextual factors. The ability to maintain a focus on quality (via MEAT weighting) in complex environments appears to depend on the presence of sufficient administrative capacity.

4.6. The Relationship Between Non-Price Criteria Complexity and SME Participation

Hypothesis 5 posited that SME participation in public procurement would be negatively associated with the complexity and weighting of non-price criteria. This expectation was grounded in the assumption that such tenders pose higher administrative burdens, potentially disadvantaging smaller firms with limited resources.

To test this hypothesis, a logistic regression was conducted using the binary outcome variable B_CONTRACTOR_SME, indicating whether the winning bidder was an SME (1) or not (0). The main predictors were standardized measures of contract complexity and the total weight assigned to non-price criteria.

Model assumptions were assessed prior to interpreting the results. Multicollinearity was ruled out, with all VIF values well below the threshold of 5 (maximum = 1.05). Indicating that multicollinearity is not a concern and that the predictors provided independent information (O'Brien, 2007). Influential observations were assessed through Cook's distance to detect any data points disproportionately affecting model estimates (Cook, 1977). No observations exceeded the conventional threshold of 1 (maximum Cook's distance = 0.035), suggesting no excessive influence from individual cases. The results of the initial model (without interaction) are summarized in Tabel 26 below and are based on standardized variables.

Table 26
Logistic Regression on SME Participation by Complexity and MEAT Weighting

Predictor	Estimate	Std. Error	z-value	p-value	Odds Ratio	CI lower bound	CI upper bound
(Intercept)	0.753	0.031	24.576	< 2e-16***	2.1239	2.0001	2.2554
Contract Complexity	0.107	0.034	3.148	0.0016***	1.1129	1.0412	1.1896
Non-Price Weight	0.191	0.031	6.199	< 0.0001***	1.2099	1.1392	1.2851

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

Contrary to expectations, the initial model revealed positive and statistically significant associations between both predictors and SME participation. Contract Complexity was associated with an 11% increase in the odds of SME success for each standard deviation increase (OR = 1.11, 95% CI [1.04, 1.19], $p = .0016$). While non-price weight had an even stronger effect: each standard deviation increase corresponded to a 21% increase in the odds of SME success (OR = 1.21, 95% CI [1.14, 1.29], $p < .0001$).

These results suggest that, rather than being deterred by complex or quality-focused tenders, SMEs may benefit from such configurations. Model fit was modest (McFadden's pseudo-R² = 0.0078), yet within the expected range for models predicting binary outcomes in public procurement. To further investigate whether the effect of non-price weighting depends on the level of complexity, an interaction term was added to the model. The extended model showed outcomes included in Table 27.

Table 27
Logistic Regression on SME Participation Including Complexity x MEAT Interaction

Predictor	Estimate	Std. Error	z-value	p-value	Odds Ratio	CI lower bound	CI upper bound
(Intercept)	0.754	0.031	24.577	< 2e-16***	2.1251	2.0012	2.2567
Contract Complexity	0.111	0.035	3.195	0.0014***	1.1177	1.0440	1.1966
Non-Price Weight	0.190	0.031	6.168	< 0.0001***	1.2089	1.1382	1.2841
Complexity x Non-Price Weight (Interaction)	0.017	0.026	0.652	0.514	1.0172	0.9665	1.0705

Note: * Significant at $p < .05$, ** Significant at $p < .01$ and *** Significant at $p < .001$.

These effects remained consistent in the interaction model. Specifically, the odds ratios were OR = 1.12 (95% CI [1.04, 1.20]) for contract complexity and OR = 1.21 (95% CI [1.14, 1.28]) for non-price weight, while the interaction term itself was not significant (OR = 1.02, 95% CI [0.97, 1.07], $p = 0.514$), suggesting no moderation effect.

The model with the interaction term showed a slightly higher effect (McFadden's R² = 0.0079). These values indicate that although the effects are statistically significant, the overall explanatory power of the models is modest.

These results lead to the rejection of Hypothesis 5. Instead of finding a negative relationship between procedural complexity or emphasis on non-price criteria and SME participation, the analysis shows a positive and statistically significant association. SMEs appear more likely to win tenders that are both more complex and more heavily weighted on non-price dimensions. Furthermore, the absence of a significant interaction effect indicates that the influence of non-price weighting on SME participation does not depend on the level of contract complexity.

4.7. Reflection on the Conceptual Model

The empirical findings invite a critical reflection on the conceptual model presented in Chapter 2. While several hypothesised relationships are broadly supported, the overall picture is more nuanced than initially anticipated. Institutional and contextual factors do appear to shape procurement practices, but their explanatory power is limited. For example, although sectoral and regional characteristics are associated with variation in MEAT usage, the observed effect sizes are relatively small, suggesting that these factors may set the stage but do not decisively determine strategic choices.

The type of contracting authority emerges as a more robust predictor, particularly in terms of how quality-related criteria are weighted. This supports the assumption that structural features of public organisations influence the extent to which public value considerations are embedded in procurement decisions. Other relationships in the model, such as the influence of urbanisation or contract complexity, require a more cautious interpretation. While certain patterns are visible, for instance, a slight tendency for sustainability to appear more often in urban contexts, the empirical support is limited. Interestingly, one of the key assumptions in the original model, that complexity and strong emphasis on quality criteria would reduce SME participation, is contradicted by the data. In fact, the analysis suggests the opposite effect.

These findings do not invalidate the conceptual model, but they highlight the importance of treating its components as indicative rather than deterministic. The model remains a useful analytical tool, but it benefits from revision to better reflect the empirical patterns observed. A revised version is presented in Figure 7, incorporating these adjustments.

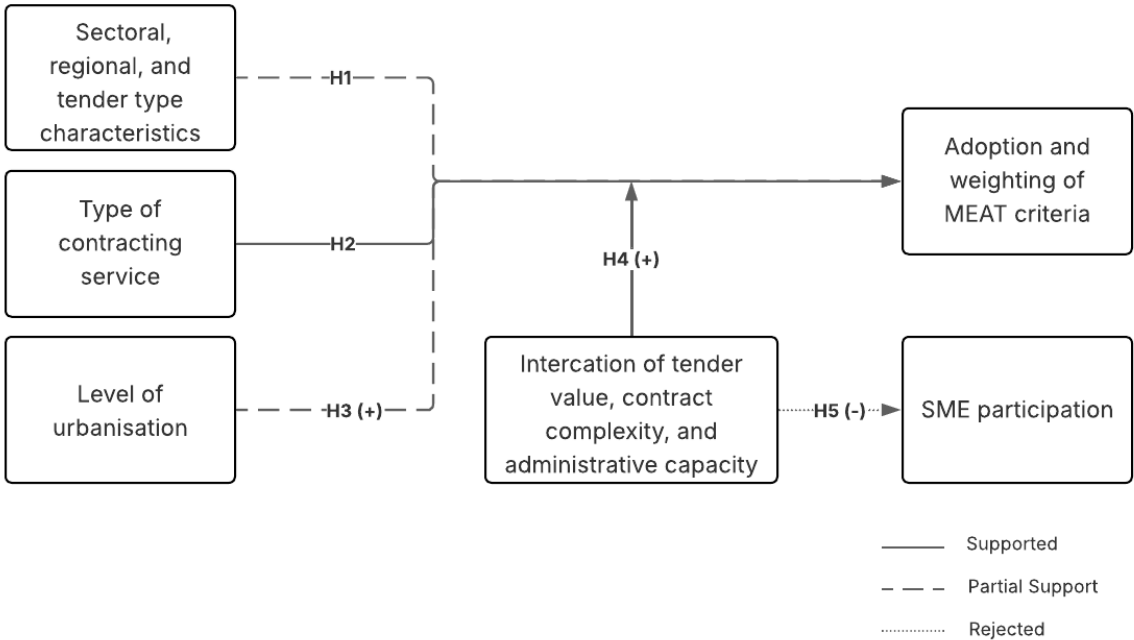


Figure 7
 Revised Conceptual Model of Determinants and Effects of MEAT Criteria in Dutch Public Procurement

5. Discussion

After presenting the empirical findings in the previous chapter, this discussion chapter reflects on those results considering the theoretical framework outlined in Chapter 2. It interprets how the observed practices relate to the existing literature on public value and strategic procurement, and considers possible explanations for the patterns identified. The discussion also addresses the implications, limitations, and relevance of the findings.

5.1. Key Findings

This study analysed 4,957 Dutch public procurement tenders from 2021 to 2023, revealing widespread use of MEAT criteria, though with a clear emphasis on quality over other non-price considerations. Quality appeared in 93% of tenders, far surpassing the inclusion of sustainability (5.5%) and innovation (0.6%) as evaluation criteria. On average, price accounted for 40% of the total weighting, while the first non-price criterion received a median weight of 60%. These results indicate a clear departure from purely cost-driven procurement, supporting the broader shift toward value-based public procurement strategies that aim to deliver long-term societal benefits.

At the same time, the data reveal substantial variation in the use and weighting of MEAT criteria across sectors, regions, and tender types. For instance, sectors such as Environment and Infrastructure tended to assign a higher weight to price, whereas sectors like Economic and Financial Affairs emphasized non-price aspects more heavily. Regionally, provinces like Overijssel placed significantly more emphasis on price, while Noord-Holland showed a stronger orientation toward qualitative evaluation. Supplies contracts generally relied more on price-based assessments than service or works contracts, suggesting that the nature of the procurement object plays a significant role in evaluation strategy.

Further, the type of contracting authority emerged as an important factor in shaping MEAT implementation. National agencies consistently assigned higher weights to non-price criteria, often significantly more than ministries, municipalities, or public law bodies. This finding highlights how institutional characteristics, such as procurement maturity or strategic alignment, can influence the way tenders are designed and evaluated.

Geographic context also proved relevant: tenders awarded in urban areas were significantly more likely to include sustainability and innovation criteria compared to those in rural settings. This suggests that urban contracting authorities, likely benefitting from greater administrative capacity, expertise, and policy alignment, are more equipped to translate strategic procurement ambitions into practice.

Lastly, while higher contract values and complex tenders were positively associated with the use of more comprehensive MEAT criteria, these same characteristics were not found to systematically discourage SME participation. Instead, SMEs were slightly more likely to win in tenders with higher complexity and stronger emphasis on non-price criteria, though the effects were small in magnitude. This suggests that quality-oriented MEAT evaluations do not necessarily create barriers for smaller firms and may even open up opportunities where flexibility and niche expertise are valued.

Therefore, it is important to note that the relationship between tender complexity and SME performance is nuanced. From a resource-based and dynamic capabilities perspective, smaller firms may sometimes outperform larger incumbents precisely under such conditions. The resource-based view (Barney et al., 2001) highlights that firms gain competitive advantage not solely from size or market power, but from the possession of valuable, rare, and inimitable resources. In the case of SMEs, such resources often lie in their flexibility, specialised expertise, and relational proximity to clients (Nootboom, 1994). Similarly, the dynamic capabilities framework (Eisenhardt & Martin, 2000; Teece et al., 1997) stresses that firms that can quickly reconfigure resources and processes in response to changing conditions are more likely to thrive under uncertainty or complexity.

Empirical studies support this view: SMEs tend to exhibit higher adaptability, shorter decision-making chains, and stronger customer orientation compared to larger incumbents (Nootboom, 1994; Vossen, 1998). These features can become decisive under MEAT criteria that reward qualitative aspects such as innovation and sustainability. For instance, when evaluation frameworks explicitly value novelty or sustainability, the agility and entrepreneurial orientation of SMEs can provide them with a competitive advantage (Clemente-Almendros et al., 2025). In this sense, complexity does not exclusively act as a barrier but can also serve as a filter that rewards adaptability over bureaucratic scale. Incorporating this countervailing theoretical frame provides a more nuanced understanding of SME competitiveness in public procurement and highlights the need to recognise agility and innovation as valuable forms of capacity alongside traditional measures of financial and administrative robustness.

These findings directly address the research gap identified in the introduction: the inconsistent application of MEAT criteria across the Dutch procurement landscape. While the MEAT framework is legally mandated and theoretically intended to foster sustainability and innovation, its practical implementation remains fragmented. The study confirms that contextual variables, such as sector, region, contract value, and institutional characteristics, are critical in shaping procurement decisions.

Theoretically, this supports the propositions from the public value and strategic procurement literature (Brammer & Walker, 2011; Stake, 2017), which argue that procurement decisions are influenced not only by economic rationale but also by administrative capacity and governance frameworks. The variation in MEAT use also reflects the institutional theory perspective on organisational decision-making: public entities operate under varying constraints, norms, and capabilities, which lead to different procurement behaviours even within a harmonised regulatory environment.

In practical terms, the findings underline the need for clearer national guidelines and targeted support (e.g., training or templates) to reduce variability and lower administrative burdens, especially for SMEs. By addressing these barriers, Dutch procurement can better align with EU policy goals on innovation, sustainability, and market access.

These findings provided a comprehensive empirical basis for evaluating current procurement strategies and inform both policy refinement and organisational decision-making, as further explored in the next sections.

5.2. Theoretical Implications

This study provides several theoretical contributions to the academic discourse on public procurement and the application of MEAT criteria. First, the findings confirm the relevance of Institutional Theory (DiMaggio & Powell, 2000) in explaining variation in procurement practices. Although Dutch procurement law uniformly prescribes the use of MEAT as the award basis, the results demonstrate substantial differences across sectors, regions, and contracting authority types. This suggests that institutional isomorphism only partially accounts for convergence, as sectoral norms, organizational routines, and regional capacities create heterogeneous outcomes. Earlier studies similarly highlight how institutional pressures shape procurement in practice. For example, Brammer and Walker (2011) showed that procurement practices across Europe diverge significantly depending on administrative traditions and governance capacities, despite a harmonised EU regulatory framework. The present study extends this reasoning to the Dutch context, illustrating how formal convergence masks substantial institutional variation. These insights nuance the assumption that regulation alone can ensure consistent implementation and highlight the influence of context-specific institutional and cultural dynamics in shaping procurement behaviour.

Second, the research advances the Public Value literature by empirically showing that public procurement in the Netherlands only partially fulfils its strategic role as a vehicle for sustainability and innovation. While quality consistently emerges as the dominant non-price criterion, sustainability and innovation remain marginal. This finding illustrates that the transition from a transactional to a strategic procurement orientation, as envisioned in the public value framework (Brammer & Walker, 2011; Symes, 1999), has not yet been fully realized. Empirical work by Murray (2009), for instance, observed that although UK public procurement formally embraced social and environmental criteria, actual uptake remained selective and uneven. This study similarly demonstrates that strategic ambitions are constrained by institutional logics of cost control and risk aversion. It underscores the persistence of institutional logics centred on cost control and risk aversion, which often override ambitions to create broader societal value.

A further theoretical implication concerns assumptions about the relationship between contract complexity and SME participation. Prevailing literature suggests that complexity and extensive non-price requirements act as barriers to SME involvement (Flynn et al., 2015; Nemec et al., 2021). Flynn et al. (2015), for example, found that SMEs across EU member states were disproportionately disadvantaged by administrative and technical burdens tied to MEAT procedures. The findings of this study partly challenge this notion: SMEs were found to be relatively successful in securing complex tenders with high non-price weightings. This divergence suggests that under certain conditions SMEs can mobilise agility and specialisation to compete effectively, thereby adding nuance to existing empirical evidence and complicating the conventional narrative of structural disadvantage.

Finally, the results call for a reconsideration of the conceptualization of MEAT criteria. While MEAT is often theorized as a mechanism for operationalizing public value objectives, the empirical evidence shows that its implementation is highly pragmatic, fragmented, and context dependent. This resonates with findings by (Loader, 2015), who argued that procurement often functions as a compliance-driven exercise rather than a consistent strategic tool. The present study reinforces this insight by showing that even where MEAT is mandated, its translation into practice reflects local capacity and sectoral governance structures. This gap between formal policy intentions and day-to-day practices suggests the need for refined theoretical models that account for the interplay between regulatory frameworks, organizational capacity, and sectoral governance structures.

In summary, this research reinforces the theoretical proposition that procurement practices are not merely the outcome of legal mandates or economic rationality but are embedded within broader institutional and contextual environments. It strengthens the understanding that public value creation through procurement depends on the dynamic interaction of regulation, organizational capabilities, sectoral logics, and market conditions. By situating Dutch evidence within and against earlier empirical studies, the analysis both confirms established theoretical propositions and contributes novel insights, particularly regarding SME competitiveness and the fragmented operationalization of MEAT.

5.3. Practical Implications

The insights derived from this study have clear practical relevance for both contracting authorities and bidding firms. This section outlines key recommendations to support more effective implementation of the MEAT framework in public procurement, with tailored guidance for each stakeholder group.

5.3.1 Implications for Contracting Authorities

The findings of this study indicate several practical measures that contracting authorities can adopt to improve the effective application of MEAT criteria in public procurement. Firstly, national or regional bodies should develop sector-specific, standardised MEAT templates that include recommended criteria, weightings, and scoring methods. Standardisation has been shown to improve comparability and transparency in procurement design (Organisation for Economic & Development, 2017).

Furthermore, investing in procurement training and professionalisation is essential. Training programmes must address both the technical components of MEAT design and broader strategic skills, such as aligning procurement with sustainability and innovation objectives. The European Commission (2021) highlights that capacity building and professionalisation are key to unlocking the strategic potential of public procurement. Introducing a formal accreditation framework could further enhance professional standards and support long-term institutional learning (Thai, 2017).

The implementation of digital support tools, including evaluation templates, scoring software, and quality checklists, would streamline MEAT assessments and reduce the risk of

manual errors. Such tools have been shown to increase efficiency and consistency in tender evaluations (Digiwhist, 2018)

To promote supplier diversity, especially among SMEs, tender documentation should be simplified, and excessively burdensome non-price criteria avoided in lower-value contracts. This aligns with EU procurement guidance which recommends reducing administrative barriers to enhance SME participation (European Union, 2014b). Encouraging inter-municipal cooperation, particularly in rural areas, could enable authorities to pool resources, share expertise, and improve MEAT design and evaluation processes—an approach supported by studies on collaborative procurement in local government (Albano & Sparro, 2010).

Additionally, piloting tenders where sustainability or innovation criteria constitute more than 50% of the award weighting would allow contracting authorities to test market responses and gain experience with ambitious MEAT configurations. This strategy reflects growing EU interest in using procurement as a lever for green and social innovation (European, 2021). Integrating MEAT reviews into internal or external audit procedures could help ensure adherence to policy goals and prevent a regression to price-only evaluations, a risk that persists even under current directives (Thai & Prier, 2011).

Finally, strengthening national coordination on MEAT implementation by establishing a unified strategy across government levels would enhance guidance, monitoring, and training efforts. This would contribute to aligning procurement practices with national and EU policy priorities, particularly those related to the Green Deal and innovation-led recovery (European Commission, 2020).

5.3.2 Implications for Bidders

While contracting authorities must optimise MEAT design, bidding firms must navigate these systems strategically. The following insights are intended to support suppliers in doing so.

While the MEAT framework imposes additional requirements on suppliers, it also offers opportunities for those capable of adapting. Bidding firms, particularly SMEs, should carefully analyse sectoral and regional tender trends to better tailor their bids in line with variations in quality emphasis. Research indicates that awareness of regional procurement patterns can improve bidding strategies (Loader, 2015).

Given that most tenders allocate less than 50% weighting to price, firms are encouraged to strengthen their non-price proposals by clearly articulating the benefits of quality, sustainability, and innovation within their submissions. Prior studies show that firms which effectively communicate added value are more likely to succeed under MEAT criteria (Thai & Grimm, 2000).

In addition, building organisational capacity to handle the administrative and technical complexities of high-value MEAT tenders can provide a competitive advantage; this may involve developing internal expertise or forming partnerships. Proactively documenting ESG credentials and innovation achievements through certifications or case studies can help

firms align their bids with likely award criteria, especially in sustainability-focused sectors or urban regions (Brammer & Walker, 2011) (Table 22).

Forming strategic partnerships or consortia may also broaden eligibility and facilitate meeting multifaceted evaluation requirements in complex or high-stakes procurements. This aligns with evidence showing that collaborative bidding can enhance competitiveness, especially for SMEs (Hommen & Rolfstam, 2009).

Standardising internal MEAT responses by creating reusable templates for common sections such as customer service and quality control can enhance efficiency and consistency, while potentially reducing administrative burdens within organisations. Finally, bidders should actively seek and analyse feedback following unsuccessful bids, particularly concerning non-price criteria, to continuously refine and improve future submissions. This reflective learning approach is supported by procurement best-practice literature (Knight, 2007; Thai & Prier, 2011).

5.4. Limitations and Future Research

While this study provides valuable insights into the application of MEAT criteria in the Dutch context, certain limitations must be acknowledged when interpreting the findings. At the same time, the topic presents promising avenues for future research that may further advance the theoretical and practical understanding of strategic procurement.

5.4.1. Limitations

While this study provides valuable insights into the implementation of MEAT criteria in Dutch public procurement, several limitations should be acknowledged. Firstly, the analysis relies exclusively on secondary data, without the support of primary methods such as interviews or surveys. As a result, it was not possible to directly capture stakeholder perspectives or contextual factors behind procurement decisions.

Secondly, to measure abstract concepts like contract complexity and administrative capacity, proxy indicators were employed. While carefully selected, proxies may not fully reflect the underlying constructs as mentioned by Williams et al. (2010).

Additionally, the accuracy of MEAT-related variables depends on how thoroughly and consistently award criteria were reported in the TED database. Subjective interpretation may also have influenced the categorisation of certain qualitative criteria, such as “innovation” or “sustainability,” particularly when descriptions were vague or overlapping.

The geographic scope of the study presents another limitation: the dataset includes only tenders published in the Netherlands. Therefore, the generalisability of findings to other EU member states is limited. This reflects a constraint in the external validity of the study, as contextual differences in procurement systems, legal frameworks, and administrative capacities may influence the applicability of the results beyond the Dutch setting (Campbell & Stanley, 1963).

Moreover, the study focuses solely on high-threshold public tenders, excluding both lower-value national procurements and private sector tenders. As such, the results may not reflect

practices in the broader procurement landscape. The selected time frame (2021–2023) also represents a relatively short period for capturing long-term trends or evaluating the impact of recent policy changes.

Furthermore, some relevant variables, such as actual contract performance or post-award outcomes (Schiele, 2009), were not available in the dataset, limiting the ability to assess the real-world effectiveness of MEAT implementation. From a methodological standpoint, statistical techniques such as the Kruskal-Wallis test are sensitive to variance and non-normality within subgroups, which may affect the robustness of certain comparisons (Conover, 1999).

Finally, as the study relies on cross-sectional data, it is not possible to infer causal relationships between variables (Reichardt, 2002) such as contract complexity, tender value, and the adoption or weighting of MEAT criteria. Unobserved confounding variables, such as organisational culture, strategic procurement policies, or internal capacity may influence both independent and dependent variables. In addition, reverse causality cannot be ruled out; tenders that already prioritise non-price criteria may be designed to appear more complex. Future research could address these methodological challenges by applying panel data designs or instrumental variable techniques (Angrist & Pischke, 2009). Suitable instruments might include exogenous policy reforms, regional budget shifts, or lagged characteristics of tenders. However, developing valid instruments in the context of public procurement remains methodologically demanding and is beyond the scope of this study.

Despite these limitations, the study offers a meaningful foundation for further research into MEAT-based procurement practices.

5.4.2. Future Research

While this study has provided empirical insights into the application of MEAT criteria within Dutch public procurement, several promising avenues remain for further academic exploration. These avenues concern both methodological extensions and theoretical deepening and would serve to address current blind spots in the procurement literature.

Firstly, qualitative research approaches could complement the present quantitative analysis by investigating the reasoning and practical constraints faced by contracting authorities when selecting and weighting MEAT criteria. In-depth interviews or focus groups with procurement professionals may shed light on the cognitive, political, and institutional drivers behind the observed patterns, particularly where variations cannot be explained solely by sector or region. Although some exploratory work exists (Boes & Dorée, 2011), systematic qualitative evidence from a Dutch context remains scarce.

Moreover, there is strong justification for comparative studies across EU Member States. While this research has focused exclusively on the Netherlands, the public procurement directives that underlie MEAT are harmonised across the EU. Nonetheless, country-specific institutional capacities, market dynamics, and political priorities are likely to lead to meaningful divergences in implementation (Peters, 2019). Future research could assess

whether similar patterns of MEAT adoption, such as sectoral variation or urban–rural disparities, exist in other countries, and what policy mechanisms best explain them.

Thirdly, the relationship between MEAT criteria and procurement outcomes warrants close examination. Although the MEAT framework is designed to optimise value-for-money and promote broader societal objectives (European Union, 2014a), empirical evidence linking MEAT configurations to actual outcomes, such as supplier performance, contract fulfilment, or user satisfaction is notably absent in the literature. A longitudinal or mixed-methods approach could explore whether the inclusion of sustainability or innovation criteria in tenders correlates with measurable post-award benefits.

Furthermore, it would be valuable to investigate how suppliers, particularly SMEs, respond to MEAT-based tenders. Research could focus on how firms adapt their bidding strategies to accommodate complex award criteria, and whether this results in exclusionary effects. While some studies have discussed the administrative burdens for smaller firms (Mahawi & Israel, 2023), there is little empirical research on behavioural responses to MEAT weighting.

Moreover, future studies could seek to evaluate the effectiveness of specific award criteria, such as CO₂ reduction or lifecycle cost analysis, in delivering tangible public value. While sustainability is a relatively frequently cited priority in procurement guidelines (Table 8), there is little empirical research assessing whether its inclusion in tendering processes leads to demonstrable environmental or social benefits.

Finally, research could be directed towards examining how MEAT complexity influences supplier diversity and inclusivity. While the present study confirms that SMEs are underrepresented in high-complexity tenders, it remains unclear whether this pattern also applies to other dimensions of supplier diversity, such as ownership, regionality, or social enterprise status. Understanding these dynamics is critical in ensuring that MEAT does not unintentionally limit equitable access to public contracts.

By pursuing these avenues, future studies can deepen our understanding of strategic procurement and support evidence-based improvements in MEAT implementation across Europe.

6. Conclusion

This thesis set out to answer the research question: *How are MEAT criteria implemented in public procurement in the Netherlands, and what factors shape their adoption and weighting across sectors, regions, and tender types?* The analysis of nearly 5,000 tenders showed that MEAT is firmly embedded in Dutch procurement but applied in highly heterogeneous ways. Quality has become the dominant non-price criterion, reflecting a broad shift beyond cost. Yet sustainability and innovation remain marginal, suggesting that procurement has not fully realized its potential as a lever for wider public value.

The study further demonstrated that MEAT usage is strongly shaped by sectoral priorities, institutional capacity, and regional context. Education and health tenders emphasized quality and continuity, while infrastructure and environmental contracts more often integrated sustainability. Urban and national authorities applied broader, more strategic frameworks than rural and local bodies, underscoring how resources and expertise condition the implementation of MEAT. Contract characteristics also mattered: higher-value and more complex tenders tended to involve wider sets of criteria, justified by the greater risks and stakes involved.

Importantly, the findings complicate the conventional narrative of SME disadvantage. While administrative burdens pose barriers, SMEs were not systematically excluded from complex tenders. In some cases, their agility, specialization, and innovative orientation enabled them to perform competitively under non-price-oriented evaluations. This observation highlights the value of resource-based and dynamic capabilities perspectives for understanding SME competitiveness in public procurement.

Taken together, the results show that MEAT criteria are widely used but highly context dependent. Rather than functioning as a uniform strategic tool, MEAT represents a dual dynamic: it ensures a baseline move away from price-only procurement, while its capacity to drive sustainability and innovation remains uneven and selective.

Theoretically, these insights reinforce Institutional Theory by showing how procurement practices are shaped less by regulation itself than by sectoral logics and capacity differences. They also contribute to Public Value debates by illustrating the partial but not yet consistent role of procurement as a governance tool for societal goals.

In conclusion, the implementation of MEAT in the Netherlands reflects an evolving balance: quality is firmly embedded as a dimension of value, sustainability and innovation are variably integrated, and outcomes remain uneven across institutional and organizational contexts. Strengthening guidance, reducing burdens, and investing in capacity-building is essential for MEAT to fulfil its potential as a driver of innovation and sustainable public value creation.

7. References

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8. Appendix

A – Final Data

Variable	Type of Data	Measurement Level	Cell Content Description
YEAR	Numeric	Nominal	Numeric value, 2021, 2022 or 2023
B_MULTIPLE_CAE	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
CAE_NAME	Character	Nominal	Name of the contracting authority; unique textual identifier
CAE_POSTAL_CODE	Character	Nominal	Address component (postal code + house number); unique textual identifier
CAE_POSTAL_CODE_NUMBERS	Character	Nominal	Address component (postal code without letters); unique textual identifier
CAE_POSTAL_CODE_EAD	Numeric	Scale	Numerical values ranging from 5 to 11,760
ISO_COUNTRY_CODE	Character	Nominal	Numeric value, always NL; not analytically useful
B_MULTIPLE_COUNTRY	Numeric	Nominal	Numeric value, always 0; not analytically useful
CEA_TYPE	Numeric	Nominal	Category: 1, 3, 4, 5, 6, 8, N and R; no natural ordering
MAIN_ACTIVITY	Character	Nominal	Categorical description of the main activity (e.g., "Education")
B_ON_BEHALF	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
B_INVOLVES_JOINT_PROCUREMENT	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
TYPE OF CONTRACT	Character	Nominal	Category: S, W and U; no natural ordering
B_DYN_PURCH_SYST	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
CRIT_CODE	Character	Nominal	Numeric value, always M; not analytically useful
CRIT_PRICE_WEIGHT	Numeric	Ratio	Weight of price in evaluation criteria (e.g., 30)

CRIT_CRITERIA_1	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_1	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_2	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_2	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_3	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_3	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_4	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_4	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_5	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_5	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_6	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_6	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_CRITERIA_7	Character	Nominal	Categorical description of the main criteria (e.g., "Quality")
CRIT_WEIGHT_7	Numeric	Interval	Weight of quality (e.g., 70); metric, but without an absolute zero point
CRIT_COUNT	Numeric	Scale	Numerical values ranging from 1 to 8

SUM_WEIGHT	Numeric	Constant	Numeric value, always 100; not analytically useful
WIN_POSTAL_CODE	Numeric	Nominal	Address component (postal code); unique textual identifier
B_CONTRACTOR_SME	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
NUMBER_OFFERS	Numeric	Ratio	Numerical values ranging from 0 to 47
AWARD_VALUE_EURO	Numeric	Ratio	Numerical values ranging from 100 to 1070000
B_SUBCONTRACTED	Numeric	Nominal	Dummy coded as 0 or 1, representing "No" or "Yes"
WIN_POSTAL_CODE_NUMBERS	Character	Nominal	Address component (postal code without letters); unique textual identifier
WIN_POSTAL_CODE_EAD	Numeric	Scale	Numerical values ranging from 5 to 11,760
WIN_MUNICIPALITY	Character	Nominal	Municipality name: unique textual identifier
WIN_PROVINCE	Character	Nominal	Province name; unique textual identifier